

HON. DAVID LAIRD

Ex Lieut.-Governor N.W.T., Leader of the Treaty Expedition of 1899

THROUGH THE MACKENZIE BASIN

A Narrative of the Athabasca and Peace River
Treaty Expedition of 1899

BY

CHARLES MAIR

English Secretary of the Half-breed Commission; Author of
"Tecumseh: a Drama," Etc.

With a Map of the Country Ceded and Numerous Photographs of
Native Life and Scenery

ALSO

NOTES ON THE MAMMALS AND BIRDS OF NORTHERN CANADA

BY RODERICK MACFARLANE

Retired Chief Factor of the Hudson's Bay Company

TORONTO
WILLIAM BRIGGS
1908

F5960

M3

MAIR, C.

140227

Copyright Canada, 1908

by

WILLIAM BRIGGS.



TO
The Hon. David Laird

LEADER OF
THE TREATY EXPEDITION OF 1899

THIS RECORD IS
CORDIALLY INSCRIBED

BY HIS OLD FRIEND
THE AUTHOR



PREFACE

THE literature descriptive of Northern Canada, from the days of Hearne and Mackenzie to those of Tyrrell and Hanbury, is by no means scanty. A copious bibliography might be compiled of the records of its exploration with a view to trade, science, or sport, particularly in recent years; whilst the accounts of the search for Sir John Franklin furnish no inconsiderable portion of such productions in the past. These books are more or less available in our Public Libraries, and, at any rate, do not enter into consideration here. Such records, however, furnished almost our sole knowledge of the Northern Territories until the year 1888, when the first earnest effort of the Canadian Parliament was made "to inquire into the resources of the great Mackenzie Basin."

Through the instrumentality of the late Sir John Schultz, then a Senator, a Select Committee of the Senate was appointed for that purpose. Sir John had always taken a great interest in the question, and was Chairman of the Committee which took evidence, oral and by letter, from a great many persons who possessed more or less knowledge of the regions in question. The evidence was voluminous, and the reader who lacks access to the Blue Book containing it will find the gist of the Report in the Appendix to this volume.

A treaty with the Indians of the region followed this Report in 1899; but, owing to the absence of roads and markets, and other essentials of civilized life, not to speak of the vast unsettled areas of prairie to the south, the incoming, until now that railways are projected, of any great body of immigrants was very wisely discouraged, and this in the interest of the settler himself. The following narrative, therefore, has lain in the author's diary since the year

of the expedition it records, its publication having been unavoidably delayed. It is now given to the public with the assurance that, whilst he does not claim freedom from error, which would be absurd, he took pains with it on the spot, and can vouch, at all events, for its general accuracy.

The writer, and doubtless some of his readers, can recall the time when to go to "Peace River" seemed almost like going to another sphere, where, it was conjectured, life was lived very differently from that of civilized man. And, truly, it was to enter into an unfamiliar state of things; a region in which a primitive people, not without faults or depravities, lived on Nature's food, and throve on her unfailing harvest of fur. A region in which they often left their beaver, silver fox or marten packs—the envy of Fashion—lying by the dog-trail, or hanging to some sheltering tree, because no one stole, and took their fellow's word without question, because no one lied. A very simple folk indeed, in whose language profanity was unknown, and who had no desire to leave their congenital solitudes for any other spot on earth: solitudes which so charmed the educated minds who brought the white man's religion, or traffic, to their doors, that, like the Lotus-eaters, they, too, felt little craving to depart. Yet they were not regions of sloth or idleness, but of necessary toil; of the laborious chase and the endless activities of aboriginal life: the region of a people familiar with its fauna and flora—of skilled but unconscious naturalists, who knew no science.

Such was the state of society in that remote land in its golden age; before the enterprising "free-trader" brought with him the first-fruits of the Tree of Knowledge; long before the half-crazed gold-hunters rushed upon the scene, the "Klondikers" from the saloons and music-halls of New York and Chicago, to whom the incredible honesty of the natives, the absence of money, and the strange barter in skins (the wyan or aghti of the Indian) seemed like a phantasmagoria—an existence utterly removed from "real" life—

PREFACE

that ostentatious and vulgar world in which they longed to play a part. It was this inroad which led to the entrance of the authority of the Queen—the Kitchi Okemasquay—not so much to preserve order, where, without the law, the natives had not unwisely governed themselves, as to prepare them for the incoming world, and to protect them from a new aggressor with whom their rude tribunals were incompetent to deal. To this end the Expedition of 1899 was sent by Government to treat for the transfer of their territorial rights, to ascertain, as well, the numbers and holdings of the few white or other settlers who had made a start at farming or stock-raising within its borders, and to clear the way for the incoming tide of settlement when the time became ripe for its extension to the North. This time is rapidly approaching, and when it comes the primitive life and methods of travel depicted will pass away forever. It is important, therefore, that as many descriptive records as possible, and at first-hand, should be preserved. Though the following account is but one of many experiences in remote Athabasca, it may claim some special value as a record of the Great Treaty by which that vast territory was ceded to the Crown; a territory equal in area to a group of European kingdoms or of American states, and whose resources, as yet comparatively unknown, are arousing eager surmise and conjecture in all directions.

Whilst putting on record the methods and hardships of travel during a singularly adverse season, the negotiations with the Indians and half-breeds, and the superficial features of the country passed through, the writer was also aware of the fact that much information of great scientific value regarding the fauna of the North, collected by his friend, Roderick MacFarlane, Esq., for many years a chief-factor of the Hudson's Bay Company, had been hitherto withheld from the general public. This keen observer's "Notes on Mammals, with Remarks on Explorers and Explorations of

the "Far North" was an important contribution to the Archives of the Smithsonian Institution (United States National Museum); and his "Notes on and List of Birds and Eggs Collected in Arctic America," if not exhaustive, was a similarly valuable addition to its records. It seemed to the writer very desirable that this information, hidden away in the "Proceedings" of a foreign scientific institution, should be given to the Canadian public, and, by Mr. MacFarlane's kind consent and wish, he is now enabled, with pleasure to himself and profit to his readers, to connect it with his own narrative of the Treaty Expedition of 1899.

The author has tried to make his narrative not merely an official record, but interesting as an itinerary, and to impart to it something of the novelty and fervour of his own sensations at the time. Notwithstanding its shortcomings in these respects, it may yet be of service in attracting to the remarkable regions described the pioneer who is not afraid of toil, or the traveller who loves the unprofaned sanctities of Nature.

CONTENTS

INTRODUCTION

	PAGE
Important events of the year 1857—The <i>Nor'-Wester</i> newspaper— The Duke of Newcastle and the Hudson's Bay Co.'s Charter— The "Anglo-International Financial Association"—The New Hudson's Bay Company—Offers of American capitalists to purchase the Company's interests—Bill providing for purchase of the same introduced into the United States Congress— Senator Sumner's memorandum to Secretary Fish—Various efforts to arouse public interest in the Hudson's Bay Terri- tories—Former Treaties with the Indians—Motives for treat- ing with the Indians of Athabasca—Rush of miners and prospectors into the district—The Indian Treaty and Half- breed Commission—The Royal North-West Mounted Police Contingent—Special stipulations with the Indians provided for	15

CHAPTER I.

FROM EDMONTON TO LESSER SLAVE LAKE.

Arrival of Treaty and Half-breed Commissions at Edmonton— Departure for Athabasca Landing—Tawutinâow peat beds, etc.—Arrival at the Landing—The gas well there—Boats and trackers—Mr. d'Eschambault and Pierre Cyr—Non-arrival of trackers—Police contingent volunteers to track a boat to Lesser Slave Lake—Nature of country, burnt forests, mus- kegs, etc.—Tracking ; its difficulties—The old Indian tracker Peokus—Forest and river scenery—Placer mining—Absence of life along the river—Fertile soil	29
--	----

CHAPTER II.

LESSER SLAVE RIVER AND LESSER SLAVE LAKE.

Lesser Slave River—Its proper name—Migration of the great Algic race—Bishop Grouard's service in the wilderness— Returning Klondikers—The rapids ; poling—Accident to Peokus—Celebration of Pere Lacombe's fiftieth year of mis- sionary labors—Arrival of half-breed trackers from Lesser	
--	--

Slave Lake—Great hay meadows on the Lesser Slave River— The island in Lesser Slave Lake—Trackers' gambling games —Swan River—A dangerous squall—Chief Factor Shaw— A free-traders' village	PAGE 43
---	------------

CHAPTER III.

TREATY AT LESSER SLAVE LAKE.

The Treaty point at last—Our camp at Lesser Slave Lake—The Treaty ground and assembly—"Civilized" Indians—Kenoo- shayoo and Moostoos—The Treaty proceedings—The Treaty Commissioners separate—Vermilion and Fort Chipewyan treaties—Indian chief asks for a railway—Wahpooskow Treaty —McKenna and Ross set out for home—Commission issued to J. A. Macrae—Numbers of Indians treated with	52
--	----

CHAPTER IV.

THE HALF-BREED SCRIP COMMISSION.

The half-breeds collect at Lesser Slave Lake—They decide upon cash, scrip or nothing—Honesty of the half-breeds and Indians —Ease of parturition amongst their women—Cree family names and their significance—Catherine Bisson—Native traits —The mongrel dog—Gambling and dancing—The "Red River jig"	68
---	----

CHAPTER V.

RESOURCES OF LESSER SLAVE LAKE REGION.

Indian lunatics: The Weeghteko—Treatment of lunatics in old Upper Canada—Lesser Slave Lake fisheries—Stock-raising at the lake—Prairies of the region—The region once a buffalo country—Quality of the soil—Wheat and roots and vegetables —Unwise to settle in large numbers in the country at present —The "blind pig"—A native row	76
--	----

CHAPTER VI.

ON THE TRAIL TO PEACE RIVER.

On the trail to Peace River—The South Heart River—Good farm- ing lands—The Little Prairie—Peace River Crossing—The vast banks of the Peace a country in themselves—Wild fruits —Prospectors from the Selwyn Mountains—The Poker Flat Mining Camp—Buffalo paths and wallows—Magnificent
--

CONTENTS

11

PAGE

prairies between Peace River Landing and Fort Dunvegan— Fort Dunvegan—Sir George Simpson and Colin Fraser— Some townships blocked here—The Roman Catholic Mission —Baffled miners returning—The natives of Dunvegan—Relics of the old régime—Large families the rule—The Church mis- sions—Back to Peace River Crossing—Tepees, tents and trading stores—Mr. Alexander Mackenzie—The sites of old fur posts—Indian names of the Peace River—Description of the agricultural and other resources of the Upper Peace River —The Chinook winds—Grand Prairie—Rainfall scanty on prairies throughout the River—Lack of waggon roads and trail facilities	81
---	----

CHAPTER VII.

DOWN THE PEACE RIVER.

The descent of the Peace River—Wolverine Point—A good farm- ing country—Paddle River and Keg of Rum River prairies— Heavy spruce forests here—Vermilion settlement—The Law- rence family and farm—Extensive wheat fields—Cattle and hog raising—Locusts—Symptoms of volcanic action—Old Lizotte and old King Beaulieu—The Chutes of Peace River— The Red River; its rich soil and prairies—Peace Point—A wild goose chase—The Gargantuan feasts of Peace River— The Quatre Fourches—Athabasca Lake	92
--	----

CHAPTER VIII.

FORT CHIPEWYAN TO FORT M'MURRAY.

Fort Chipewyan and Athabasca Lake—Colin Fraser's trading-post —The Barren Ground reindeer—Feathered land game—The Indians of Fond du Lac—Mineral resources—First companies formed to prospect the Great Slave Lake minerals—The Helpman party—The Yukon Valley Prospecting and Mining Company—Assays of copper ore—A great mineral country— A railway required from Chesterfield Inlet to develop it— Moss of the Barren Lands—Lake Athabasca the rallying place of the Déné race—Meaning of Indian generic names— "Mackenzie's country"—Its first traders—The North-West Company—The original Indians—The mastodon believed by the natives to exist—Return of Klondikers from Mackenzie River—Their bad conduct—By steamer <i>Grahame</i> to Fort McMurray—Killing a moose—Fort McMurray	103
--	-----

CHAPTER IX.

THE ATHABASCA RIVER REGION.

PAGE

The tar-banks—Characteristic features of the river—The rapids of the Athabasca—The cut-banks—A freshet—A fine camp—The “Indian lop-stick”—The natural gas springs—Grand Rapids—Coal abundant—Good farming country—The Point at House River—The Joli Fou Rapid—Bad tracking—Pelican Portage—Spouting gas well—Matcheese, the Indian runner .	121
---	-----

CHAPTER X.

THE TRIP TO WAHPOOSKOW.

The Pelican River—Poling and paddling—Character of the river and country—Great hay meadows—An Indian runner—The Pelican Mountains—Muskegs and rich soil—Pelican Lake the height of land—Abundance of fish—The first Wahpooskow Lake—The second lake—Mission of Rev. C. R. Weaver—Other missions of the C.M.S.—Mission of the Rev. Father Giroux—Other Roman Catholic missions—Indians and half-breeds—The crows and the fish—A ball at Wahpooskow—Farming land and muskeg in the district—Superstitions of the Indians—Polygamy and polyandry—The changing woods—The <i>fec populi</i> —A little beauty—Calling River—Another ancient woman and her memories—Our return to Athabasca Landing	132
CONCLUSION	147

Notes on Mammals Collected and Observed in the Northern Mackenzie River District, North-West Territories of Canada	153
List of Birds and Eggs Observed and Collected in the North-West Territories of Canada, between 1880 and 1894	287
Notes on the Franklin Expedition	448
Appendix	471
Index to Mammals	491
Index to Birds	492

ILLUSTRATIONS

	PAGE
Hon. David Laird	<i>Frontispiece</i>
The Treaty Commission	18
The Half-breed Scrip Commission	22
Royal North-West Mounted Police Contingent	22
Commissioners McKenna and Ross, and Inspector Snyder, R.N.W.M.P.	28
Père Lacombe and Commissioner Coté	28
Athabasca Landing in 1899.	28
An awkward spot	40
Severe tracking up the Athabasca River	40
On the rocks	40
Treaty Camp at Lesser Slave Lake	52
Indian tepees	52
Keenoshayo addressing the Commission at Lesser Slave Lake	60
Mr. Laird addressing the Beavers and Crees at Fort Vermilion	64
Half-breed Commission tent at Lesser Slave Lake	68
The Commission at work	68
Scene in the Scrip marquee at Lesser Slave Lake	68
The north bank at Peace River Crossing	82
Commission and half-breeds at Fort Dunvegan, Upper Peace River	82
Our camp at Peace River Crossing	82
The Lawrence wheatfield at Fort Vermilion	94
A primitive R.C. Mission in Athabasca	94
Ladies of Chipewyan	94
The beldam of a Cree camp	94
Peace River Rapids	98
Running the first chute on Peace River	98
Portaging our boats over the Great Chute of Peace River	98

	PAGE
Inside Fort Chipewyan	104
Bishop Grouard's Mission and Church at Fort Chipewyan	104
Colin Fraser's trading post at Fort Chipewyan	104
Lake Athabasca at Fort Chipewyan	108
Fort Smith and steamer <i>Grahame</i> on Great Slave River	108
Fort Fond du Lac	108
"Red River" Ox-carts at Fort Smith	108
Bull moose killed in the Athabasca below Fort McMurray	120
Half-breed Commission boat leaving Fort McMurray	120
Bank of the Athabasca above Fort McMurray	120
Tracking up an Athabasca rapid	124
A rest near Grand Rapids	124
In the Grand Rapids of the Athabasca	124
View on the Athabasca near the Landing	128
Grotesque alto-relievos on an Athabaskan cut-bank	128
Tracking up the Grand Rapids of the Athabasca	128
R.N.W.M.P. post at Grand Rapids	132
Typical half-breed fireplace and chimney	132
A lady Klondiker	132
Canoeing on the Pelican River	138
Ascending the Pelican River	138
Half-breed family drying whitefish at Wahpooskow Lake	138
An Indian centenarian, Marie Rose Gladu, and the Author	144
Roderick MacFarlane	150
Fort Anderson	155
The Ramparts, Mackenzie River	228
The Queen's Arctic Medal	283
Fort McPherson, Peel River	286
Fort Chipewyan, Athabaska Lake	286
Fort Resolution, Great Slave Lake	470
Fort Good Hope	470

Department of Indian Affairs

1900.

MAP showing the Territory
ceded under treaty No. 8.
and the Indian tribes therein.

Scale. 100 miles to an Inch.





INTRODUCTION

The important events of A.D. 1857, and the negotiations which led to the Transfer of the Hudson's Bay Territories—Former Treaties and the Treaty Commission of 1899.

THE terms upon which Canada obtained her great possessions in the West are generally known, and much has been written regarding the tentative steps by which, after long years of waiting, she acquired them. The distinctively prairie, or southern, portion of the country and its outliers, constituting "Prince Rupert's Land," had been claimed by the Hudson's Bay Company since May, 1670, as an absolute freehold. This and the North-West Territories, in which, under terminable lease from the Crown, the Company exercised, as in British Columbia, exclusive rights to trade only, were, as the reader knows, transferred to Canada by Imperial sanction at the same time. It is not the author's intention, therefore, to cumber his pages with trite or irrelevant matter; yet certain transactions which preceded this primordial and greatest treaty of all not unfittingly may be set forth, though in the briefest way, as a pardonable introduction to the following record.

The year 1857 was an eventful one in the annals of "The North-West," the name by which the Territories were generally known in Canada.* In that year two expeditions

*An important event in Red River was begot of the stirring incidents of this year, namely, the starting at Fort Garry, in December, 1859, by two gentlemen from Canada, Messrs. Buckingham and Caldwell, of the first newspaper printed in British territory east of British Columbia and west of Lake Superior. It was called the *Nor'-Wester*, but, having few advertisements, and only a limited circulation, the originators sold out to Dr. (afterwards Sir John) Schultz, who, at his own expense, published the paper, almost down to the Transfer, as an advocate of Canadian annexation, immigration and development.

were set afoot to explore the country; one in charge of Captain Palliser,* equipped by the Imperial Government, and the other, under Professor Hind, at the expense of the Government of Canada. An influential body of Red River settlers, too, at this time petitioned the Canadian Parliament to extend to the North-West its government and protection; and in the same year the late Chief Justice Draper was sent to England to challenge the validity of the Hudson's Bay Company's charter, and to urge the opening up of the country for settlement. But, above all, a committee of the British House of Commons took evidence that year upon all sorts of questions concerning the North-West, and particularly its suitability for settlement, much of which was valueless owing to its untruth. Nevertheless, the Imperial Committee, after weighing all the evidence, reported that the Territories were fit for settlement, and that it was desirable that Canada should annex them, and hoped that the Government would be enabled to bring in a bill to that end at the next session of Parliament. Five years later, the Duke of Newcastle, who became Secretary of State for the Colonies in 1859, and accompanied the Prince of Wales to Canada as official adviser in 1860, having in his possession the petition of the Red River settlers, as printed by order of the Canadian Legislature, brought the matter up in a vigorous speech in the House of Lords, in which he expressed his belief that the Hudson's Bay Company's charter was invalid, though, he added, "it would be a serious blow to the rights of property to meddle with a charter two hundred years old. But it might happen," he continued, "in the inevitable course of

*Strange to say, Captain Palliser reported that he considered a line of communication entirely through British territory, connecting the Eastern Provinces and British Columbia, out of the question, as the Astronomical Boundary adopted isolated the prairie country from Canada. Professor Hind, on the other hand, in the same year, standing on an eminence on the Qu'Appelle, beheld in imagination the smoke of the locomotive ascending from the train speeding over the prairies on its way through Canada from the Atlantic to the Pacific.

events, that Parliament would be asked to annul even such a charter as this, in order, as set forth in the Queen's Speech, that all obstacles to an unbroken chain of loyal settlements, stretching from ocean to ocean, should be removed." British Columbia, which had become a Province in 1858, was now urging the Imperial Government with might and main to furnish a waggon-road and telegraph line to connect her, not only with the Territories and Canada, but with the United Empire. She was met by the stiffest of opposition, the opposition of a very old corporation strongly entrenched in the governing circles of both parties. But the clamour of British Columbia was in the air, and her suggestions, hotly opposed by the Company, had been brought before the House of Lords by another peer. In the discussion which followed, the Duke of Newcastle declared that "it seemed monstrous that any body of gentlemen should exercise fee-simple rights which precluded the future colonization of that territory, as well as the opening of lines of communication through it." The Minister's idea at the time seemed to be to cancel the charter, and to concede proprietary rights around fur posts only, together with a certain money payment, considerably less, it appears, than what was ultimately agreed upon.

The Hudson's Bay Company, alarmed at the outlook and the attitude of the Colonial Secretary, offered their entire interests and belongings, trade and territorial, to the Imperial Government for a million and a half pounds sterling, an offer which the Duke was disposed to accept, but which was unfortunately declined by Mr. Gladstone, then Chancellor of the Exchequer. The Duke, who had resigned his office in 1864, died in October following, and in the meantime a change of a startling character had come over the time-honoured company, which sold out to a new company in 1863, being merged into, or rather merging into itself, an organization known as "The Anglo-International Financial Association," which included several prominent American capitalists. The old name was retained, but everything else was to be changed.

The policy of exclusion was to cease, immigration was to be encouraged, and a telegraph line built through the Territories to the Pacific coast. The wire for this was actually shipped, and lay in Rupert's Land for years, until made use of by the Mackenzie Administration in the building of the Government telegraph line, which followed the railway route defined by Sir Sandford Fleming. The old Hudson's Bay Company's shares, of a par value of half a million pounds sterling, were increased to a million and a half under the new adjustment, and were thrown upon the market in shares of twenty pounds sterling each. Sir Edmund Head, an old ex-Governor of Canada, was made Governor of the new company. The Stock Exchange was not altogether favourable, and the remaining shares were only sold in the Winnipeg land boom of 1881.

The alien element in the new company seemed to inspire the politicians of the United States with surpassing hopes and ideas. An offer to purchase its territorial interests was made in January, 1866, by American capitalists, which was not unfavourably glanced at by the directorate. It was capped later on. The corollary of the proposal was a bill, actually introduced into the United States Congress in July following, and read twice, "providing for the admission of the States of Nova Scotia, New Brunswick, Canada East and Canada West, and for the organization of the Territories of Selkirk, Saskatchewan and Columbia." The bill provided that "The United States would pay ten millions of dollars to the Hudson's Bay Company in full of all claims to territory or jurisdiction in North America, whether founded on the Charter of the Company, or any treaty, law, or usage." The grandiosity, to use a mild phrase, of such a measure needs no comment. But though it seems amusing to the Canadian of to-day, it was by no means a joke forty years ago. As a matter of fact, the then almost uninhabited Territories, cut off from the centres of Canadian activity by a wilderness of over a thousand miles, would have been invaded by Fenians and filibusters but for the fact that they were a part of the



The Treaty Commission

Seated—Mr. Round, Hon. David Laird, Mr. Young
Standing—Mr. d'Eschambault, two R.N.W.M.P. constables, Camp-Manager McKay and the cook, Lafrance



British Empire. An attempt at this was indeed made at a later date. This possibility was afterwards formulated, evidently as a threat, by Senator Charles Sumner during the "Alabama Claims" discussion, in his astonishing memorandum to Secretary Fish. "The greatest trouble, if not peril," he said, "is from Fenianism, which is excited by the British flag in Canada. Therefore, 'the withdrawal of the British flag' cannot be abandoned as a preliminary of such a settlement as is now proposed. To make the settlement complete the withdrawal should be from this hemisphere, including provinces and islands." A refreshing proposition, truly!

It was the Imperial Government, of course, which figured most prominently throughout the "North-West" question. But, it may be reasonably asked, what was Canada doing, with her deeper interests still, to further them in those long years of discussion and delay? With the exception of the Hind Expedition, the Draper mission, the printing and discussion of the Red River settlers' petition and consequent Commission of Inquiry, certainly not much was done by Parliament. More was done outside than in the House to arouse public interest; for example, the two admirable lectures delivered in Montreal in 1858 by the late Lieutenant-Governor Morris, followed by the powerful advocacy of the Hon. William Macdougall and others, aided by the *Toronto Globe*, a small portion of the Canadian press, and the circulation, limited as it was, of the Red River newspaper, the *Nor'-Wester*, in Ontario.

An unseen, but adverse, parliamentary influence had all along hampered the Cabinet; an influence adverse not only to the acquisition of the Territories, but even to closer connection by railway with the Maritime Provinces.* This sinister influence was only overcome by the great Conferences which resulted in the passage of the British North America Act in 1867, which contained a clause (Article 11, Sec. 146),

**Vide* a series of articles contributed to the *Toronto Week*, in July, 1896, by Mr. Malcolm McLeod, Q.C., of Ottawa, Ont.

inserted at the instance of Mr. Macdougall, providing for the inclusion of Rupert's Land and the North-West Territories upon terms to be defined in an address to the Queen, and subject to her approval. In pursuance of this clause, Mr. Macdougall in 1867 introduced into the first Parliament of the Dominion a series of eight resolutions, which, after much opposition, were at length passed, and were followed by the embodying address, drafted by a Special Committee of the House, and which was duly transmitted to the Imperial Government. This was followed by the mission of Messrs. Cartier and Macdougall to London, to treat for the transfer of the Territories, which, through the mediation of Lord Granville, was finally effected. The date fixed upon for the transfer was the first of December, 1869. Unfortunately for Lieutenant-Governor Macdougall, owing to the outbreak of armed rebellion at Red River, it was postponed without his knowledge, and it was not until the 15th of July, 1870, that the whole country finally became a part of the Dominion of Canada. With the latter date the annals of Prince Rupert's Land and the North-West Territory end, and the history of Western Canada begins.

But whilst the Hudson's Bay Company's territorial rights and those of Great Britain had been at last transferred to the Dominion, there remained inextinguished the most intrinsic of all, viz., the rights of the Indians and their collaterals to their native and traditional soil. The adjustment of these rights was assumed by the Canadian Parliament in the last but one of the resolutions introduced by Mr. Macdougall, and no time was lost after the transfer in carrying out its terms, "in conformity with the equitable principles which have uniformly governed the Crown in its dealings with the aborigines."*

*In the foregoing brief sketch, the author, for lack of space, omits all reference to the Red River troubles, which preceded the actual transfer, as also to the military expedition under Col. Wolseley, the threatened recall of which from Prince Arthur's Landing, in July, 1870, was blocked by the bold and vigorous actions of the Canada First Party in Toronto.

FORMER TREATIES.

Before passing on to my theme, a glance at the treaties made in Manitoba and the organized Territories may be of interest to the unfamiliar reader.

The first treaty, in what is now a part of Manitoba, was made in pursuance of a purchase of the old District of Assiniboia from the Hudson's Bay Company in 1811 by Lord Selkirk, who in that year sent out the first batch of colonists from the north of Scotland to Red River. The Indian title to the land, however, was not conveyed by the Crees and Saulteaux until 1817, when Peguis and others of their chiefs ceded a portion of their territory for a yearly payment of a quantity of tobacco. The ceded tract extended from the mouth of the Red River southward to Grand Forks, and, westward, along the Assiniboine River to Rat Creek, the depth of the reserve being the distance at which a white horse could be seen on the plains, though this matter is not very clear. The British boundary at that time ran south of Red Lake, and would still so run but for the indifference of bygone Commissioners. This purchase became the theatre of Lord Selkirk's far-seeing scheme of British settlement in the North-West, with whose varying fortunes and romantic history the average reader is familiar.

The first Canadian treaties were those effected by Mr. Weemys Simpson in 1871, first at Stone Fort, Man., covering the old purchase from Peguis and others, and a large extent of territory in addition, the stipulated terms of payment being afterwards greatly enlarged. These treaties are known as Nos. 1 and 2, and were followed by the North-West Angle Treaty, effected by Lieutenant-Governor Morris, in 1873, with the Ojibway Saulteaux. In 1874 the Qu'Appelle Treaty, after prolonged discussion and inter-tribal jealousy and disturbance, was concluded by Lieutenant-Governor Morris, the Hon. David Laird, then Minister of the Interior, and Mr. W. J. Christie, of the Hudson's Bay Company.

Treaty No. 5 followed, with the cession of 100,000 square miles of territory, covering the Lake Winnipeg region, etc., after which the Great Treaty (No. 6), at Forts Carlton and Pitt, in 1876, covering almost all the country drained by the two Saskatchewan, was partly effected by Mr. Morris and his associates, the recalcitrants being afterwards induced by Mr. Laird to adhere to the treaty, with the exception of the notorious Big Bear, the insurgent chief who figured so prominently in the Rebellion of 1885. The final treaty, or No. 7, made with the Assiniboines and Blackfeet, the most powerful and predatory of all our Plain Indians, was concluded by Mr. Laird and the late Lieut.-Colonel McLeod in 1877. By this last treaty had now been ceded the whole country from Lake Winnipeg to the Rocky Mountains, and from the international boundary to the District of Athabasca. But there remained in native hands still that vast northern anticlinal, which differs almost entirely in its superficial features from the prairies and plains to the south; and it was this region, enormous in extent and rich in economic resources, which, it was decided by Government, should now be placed by treaty at the disposal of the Canadian people. To this end it was determined that at Lesser Slave Lake the first conference should be held, and the initial steps taken towards the cession of the whole western portion of the unceded territory up to the 60th parallel of north latitude.

The more immediate motive for treating with the Indians of Athabasca has been already referred to, viz., the discovery of gold in the Klondike, and the astonishing rush of miners and prospectors, in consequence, to the Yukon, not only from the Pacific side, but, east of the mountains, by way of the Peace and Mackenzie rivers. Up to that date, excepting to the fur-traders and a few missionaries, settlers, explorers, geologists and sportsmen, the Peace River region was practically unknown; certainly as little known to the people of Ontario, for example, as was the Red River country thirty



Half-breed Scrip Commission
Seated - Major Walker and Mr. Coté. *Standing*—Mr. Prudhomme and Mr. Mair.



The Royal North West Mounted Police Contingent



years before. It was thought to be a most difficult country to reach—a *terra incognita*—rude and dangerous, having no allurements for the average Canadian, whose notions about it, if he had any, were limited, as usual, to the awe-inspiring legend of “barbarous Indians and perpetual frost.”

There is a lust, however, the unquenchable lust for gold, which seems to arouse the dullest from their apathy. This is the *primum mobile*; from earliest days the sensational mover of civilized man, and not unlikely to remain so until our old planet capsizes again, and the poles become the equator with troglodites for inhabitants. No barriers seem insurmountable to this rampant spirit; and, urged by it, the gold-seekers, chiefly aliens from the United States, plunged into the wilderness of Athabasca without hesitation, and without as much as “by your leave” to the native. Some of these marauders, as was to be expected, exhibited on the way a congenital contempt for the Indian’s rights. At various places his horses were killed, his dogs shot, his bear-traps broken up. An outcry arose in consequence, which inevitably would have led to reprisals and bloodshed had not the Government stepped in and forestalled further trouble by a prompt recognition of the native’s title. Hitherto he had been content with his lot in these remote wildernesses, and well might he be! One of the vast river systems of the Continent, perhaps the greatest of them all, considering the area drained, teeming with fish, and alive with fur and antler, was his home—a region which furnished him in abundance with the means of life, not to speak of such surplus of luxuries as was brought to his doors by his old and paternal friend, “John Company.” His wants were simple, his life healthy, though full of toil; his appetite great—an appetite which thrived upon what it fed, and gave rise to fabulous feats of eating, recalling the exploits of the beloved and big-bellied Ben of nursery lore.

But the spirit of change was brooding even here. The

moose, the beaver and the bear had for years been decreasing, and other fur-bearing animals were slowly but surely lessening with them. The natives, aware of this, were now alive, as well, to concurrent changes foreign to their experience. Recent events had awakened them to a sense of the value the white man was beginning to place upon their country as a great storehouse of mineral and other wealth, enlivened otherwise by the sensible decrease of their once unfailing resources. These events were, of course, the Government borings for petroleum, the formation of parties to prospect, with a view to developing, the minerals of Great Slave Lake, but, above all, the inroad of gold-seekers by way of Edmonton. The latter was viewed with great mistrust by the Indians, the outrages referred to showing, like straws in the wind, the inevitable drift of things had the treaties been delayed. For, as a matter of fact, those now peaceable tribes, soured by lawless aggression, and sheltered by their vast forests, might easily have taken an Indian revenge, and hampered, if not hindered, the safe settlement of the country for years to come. The Government, therefore, decided to treat with them at once on equitable terms, and to satisfy their congeners, the half-breeds, as well, by an issue of scrip certificates such as their fellows had already received in Manitoba and the organized Territories. To this end adjustments were made by the Hon. Clifford Sifton, then Minister of the Interior and Superintendent-General of Indian Affairs, during the winter of 1898-9, and a plan of procedure and basis of treatment adopted, the carrying out of which was placed in the hands of a double Commission, one to frame and effect the Treaty, and secure the adhesion of the various tribes, and the other to investigate and extinguish the half-breed title. At the head of the former was placed the Hon. David Laird, a gentleman of wide experience in the early days in the North-West Territories, whose successful treaty with the refractory Blackfeet and their

allies is but one of many evidences of his tact and sagacity.* A nature in which fairness and firmness met was, of all dispositions, the most suited to handle such important negotiations with the Indians as parting with their blood-right. Fortunately these qualities were pre-eminent in Mr. Laird, who had administered the government of the organized Territories, at a primitive stage in their history, in the wisest manner, and, at the close of his official career, returned to his home in Prince Edward Island leaving not an enemy behind him.

The other Treaty Commissioners were the Hon. James Ross, Minister of Public Works in the Territorial Government, and Mr. J. A. McKenna, then private secretary to the Superintendent-General of Indian Affairs, and who had been for some years a valued officer of the Indian Department. With them was associated, in an advisory capacity, the Rev. Father Lacombe, O.M.I., Vicar-General of St. Albert, Alta., whose history had been identified for fifty years with the Canadian North-West, and whose career had touched the currents of primitive life at all points.†

*The Hon. David Laird is a native of Prince Edward Island. His father emigrated from Scotland to that Province early in the last century, and ultimately became a member of its Executive Council. After leaving college his son David began life as a journalist, but later on took to politics, and being called, like his father, to the Executive Council, was selected as one of the delegates to Ottawa to arrange for the entrance of the Island into the Canadian Confederation. He was subsequently elected to the Dominion House of Commons, and became Minister of the Interior in the Mackenzie Administration. After three years' occupancy of this department he was made Lieut.-Governor of the North-West Territories, an office which he filled without bias and to the satisfaction of both the foes and friends of his own party. He returned to the Island at the close of his official term, but was called thence by the Laurier Administration to take charge of Indian affairs in the West, with residence in Winnipeg, which is now his permanent home.

†Father Lacombe is by birth a French Canadian, his native parish being St. Sulpice, in the Island of Montreal, where he was born in the year 1827. On the mother's side he is said to draw his descent from the daughter of a habitant on the St. Lawrence River called Duhamel, who was stolen in girlhood by the Ojibway Indians, and subsequently taken to wife by their chief, to whom she bore two sons. By mere accident, her uncle, who was one of a North-West

Not associated with the Commission, but travelling with it as a guest, was the Right Rev. E. Grouard, O.M.I., the Roman Catholic Bishop of Athabasca and Mackenzie rivers, who was returning, after a visit to the East, to his headquarters at Fort Chipewyan, where his influence and knowledge of the language, it was believed, would be of great service when the treaty came under consideration there. The secretaries of the Commission were Mr. Harrison Young, a son-in-law of the Rev. George McDougall, the distinguished missionary who perished so unaccountably on the plains in the winter of 1876, and Mr. J. W. Martin, an agreeable young gentleman from Goderich, Ont. Connected with the party in an advisory capacity, like Father Lacombe, and as interpreter, was Mr. Pierre d'Eschambault, who had been for over thirty years an officer in the Hudson's Bay Company's service. The camp-manager was Mr. Henry McKay, of an old and highly esteemed North-West family. Such was the *personnel*, official and informal, of the Treaty Commission, to which was also attached Mr. H. A. Conroy, as accountant, robust and genial, and well fitted for the work.

The Half-breed Scrip Commission; whose duties began where the treaty work ended, was composed of Major Walker, a retired officer of the Royal North-West Mounted Police, who had seen much service in the Territories and was in com-

pany trading party on Lake Huron, met her at an Indian camp on one of the Manitoulin islands, and having identified her as his niece, restored her and her children to her family. Father Lacombe was ordained a priest by Bishop Bourget, of Montreal, and in 1849 set out for Red River, where he became intimately associated with the French half-breeds, accompanying them on their great buffalo hunts, and ministering not only to the spiritual but to the temporal welfare of them and their descendants down to the present day. In 1851 he took charge of the Lake Ste. Anne Mission, and subsequently of St. Albert, the first house in which he helped to build; and from these Missions he visited numbers of outlying regions, including Lesser Slave Lake. His principal missionary work, however, for twenty years was pursued amongst the Blackfoot Indians on the Great Plains, during which he witnessed many a perilous onslaught in the constant warfare between them and their traditional enemies, the Crees. Being now over eighty years of age, he has retired from active duty, and is spending the remainder of his days at Pincher Creek, Alta., where, it is understood, he is preparing his memoirs for publication at an early date.

mand of the force present at the making of the Fort Carlton Treaty in 1876; and Mr. J. A. Coté, an experienced officer of the Land Department at Ottawa. The secretaries were Mr. J. F. Prudhomme, of St. Boniface, Man., and the writer.

Our transport arrangements, from start to finish, had been placed entirely in the hands of a competent officer of the Hudson's Bay Company, Mr. H. B. Round, an old resident of Athabasca; and to the Commission was also annexed a young medical man, Dr. West, a native of Devonshire, England, whose services were appreciated in a region where doctors were almost unknown. But not the least important and effective constituent of the party was the detachment of the Royal North-West Mounted Police, which joined us at Edmonton, minus their horses, of course; picked men from a picked force; sterling fellows; whose tenacity and hard work in the tracking-harness did yeoman service in many a serious emergency. This detachment consisted of Inspector Snyder, Sergeant Anderson, Corporals Fitzgerald and McClelland, and Constables McLaren, Lett, Burman, Lelonde, Burke, Vernon and Kerr. The conduct of these men, it is needless to say, was the admiration of all, and assisted materially, as will be seen hereafter, in the successful progress of the expedition.

Whilst it had been decided that the proposed adjustments should be effected, if possible, upon the same terms as the previous treaties, it was known that certain changes would be necessary owing to the peculiar topographic features of the country itself. For example, in much of it arable reserves, such as many of the tribes retained in the south, were unavailable, and special stipulations were necessary, in such case, so that there should be no inequality of treatment. But where good land could be had, a novel choice was offered, by which individual Indians, if they wished, could take their inalienable shares in severalty, rather than be subject to the "band," whereby many industrious Indians elsewhere had been greatly hampered in their efforts to improve their con-

dition. But, barring such departures as these, the proposed treaties were to be effected, as I have said, according to precedent. The Commission, then, resting its arguments on the good faith and honour of the Government and people of Canada in the past, looked forward with confidence to a successful treaty in Athabasca, the record of travel and intercourse, to that end, beginning with the following narrative.



Commissioners McKenna and Ross and
Inspector Snyder R.N.W.M.P.



The venerable missionary, Pere Lacombe,
and Commissioner Cote



Athabasca Landing in 1899



Through the Mackenzie Basin

CHAPTER I.

FROM EDMONTON TO LESSER SLAVE LAKE.

MR. LAIRD, with his staff, left Winnipeg for Edmonton by the Canadian Pacific express on the 22nd of May, two of the Commissioners having preceded him to that point. The train was crowded, as usual, with immigrants, tourists, globe-trotters and way-passengers. Parties for the Klondike, for California or Japan—once the far East, but now the far West to us—for anywhere and everywhere, a C. P. R. express train carrying the same variety of fortunates and unfortunates as the ocean-cleaving hull. Calgary was reached at one a.m. on the Queen's birthday, and the same morning we left for Edmonton by the C. & E. Railway. Every one was impressed favourably by the fine country lying between these two cities, its intermediate towns and villages, and fast-growing industries. But one thing especially was not overlooked, viz., the honour due to our venerable Queen, alas, so soon to be taken from us.

In the evening we arrived at Strathcona, and found it thronged with people celebrating the day. Crossing the river to Edmonton, we got rooms with some difficulty in one of its crowded hotels, but happily awoke next morning refreshed and ready to view the town. It is needless to describe what has been so often described. Enough to say Edmonton is one of the doors to the great North, an outfitter of its traders, an emporium of its furs. And there is some-

thing more to be said. It has an old fort, or, rather, portions of one, for the vandalism which has let disappear another, and still more historic, stronghold, is manifest here as well. And truly, what savage scenes have been enacted on this very spot! What strife in the days of the rival companies! Edmonton is a city still marked by the fine savour of the "Old-Timers," who meet once a year to renew associations, and for some fleeting but glorious hours recall the past on the great river. Age is thinning them out, and by and by the remainder man will shake his "few, sad, last gray hairs," and slip out, too. But the tradition of him, it is to be hoped, will live, and bind his memory forever to the soil he trod, when all this Western world was a wilderness, each primitive settlement a happy family, each unit an unsophisticated, hospitable soul.

To our mortification we found that our supplies, seasonably shipped at Winnipeg, would not arrive for several days; a delay, to begin with, which seemed to prefigure all our subsequent hindrances. Then rain set in, and it was the afternoon of the 29th before Mr. Round could get us off. Once under way, however, with our thirteen waggons, there was no trouble save from their heavy loads, which could not be moved faster than a walk. Our first camp was at Sturgeon River—the Namáo Sepe of the Crees—a fine stream in a defile of hills clothed with poplar and spruce, the former not quite in leaf, for the spring was backward, though seeding and growth in the Edmonton District was much ahead of Manitoba. The river flat was dotted with clumps of russet-leaved willows, to the north of which our waggons were ranged, and soon the quickly pitched tents, fires and sizzling fry-pans filled even the tenderfoot with a sense of comfort.

Next morning our route lay through a line of low, broken hills, with scattered woods, largely burnt and blown down by the wind; a desolate tract, which enclosed, to our left, the Lily Lake—Ascútamo Sakaigon—a somewhat marshy-

looking sheet of water. Some miles farther on we crossed Whiskey Creek, a white man's name, of course, given by an illicit distiller, who throve for a time, in the old "Permit days," in this secluded spot. Beyond this the long line of the Vermilion Hills hove in sight, and presently we reached the Vermilion River, the Wyamun of the Crees, and, before nightfall, the Nasookamow, or Twin Lake, making our camp in an open besmirched pinery, a cattle shelter, with bleak and bare surroundings, neighboured by the shack of a solitary settler. He had, no doubt, good reasons for his choice; but it seemed a very much less inviting locality than Stony Creek, which we came to next morning, approaching it through rich and massive spruce woods, the ground strewn with anemones, harebells and violets, and interspersed with almost startlingly snow-white poplars, whose delicate buds had just opened into leaf.

Stony Creek is a tributary of a larger stream, called the Tawutináow, which means "a passage between hills." This is an interesting spot, for here is the height of land, the "divide" between the Saskatchewan and the Athabasca, between Arctic and Hudson Bay waters, the stream before us flowing north, and carrying the yellowish-red tinge common to the waters on this slope. A great valley to the left of the trail runs parallel with it from the Sturgeon to the Tawutináow, evidently the channel of an ancient river, whose course it would now be difficult to determine without close examination. At all events, it stretches almost from the Saskatchewan to the Athabasca, and indicates some great watershed in times past. Hay was abundant here, and much stock, it was evident, might be raised in the district.

Towards evening we reached the Tawutináow bridge, some eighteen miles from the Landing, our finest camp, dry and pleasant, with sward and copse and a fine stream close by. Here is an extensive peat bed, which was once on fire and burnt for years—a great peril to freighters' ponies, which sometimes grazed into its unseen but smouldering depths.

The seat of the fire was now an immense grassy circle, with a low wall of blackened peat all around it.

In the morning an endless succession of small creeks was passed, screened by deep valleys which fell in from hills and muskegs to the south, and at noon, jaded with slow travel, we reached Athabasca Landing. A long hill leads down to the flat, and from its brow we had a striking view of the village below and of the noble river, which much resembles the Saskatchewan, minus its prairies. We were now fairly within the bewildering forest of the north, which spreads, with some intervals of plain, to the 69th parallel of north latitude; an endless jungle of shaggy spruce, black and white poplar, birch, tamarack and Banksian pine. At the Landing we pitched our tents in front of the Hudson's Bay Company's post, where had stood, the previous year, a big canvas town of "Klondikers." Here they made preparation for their melancholy journey, setting out on the great stream in every species of craft, from rafts and coracles to steam barges. Here was begun an episode of that world-wide craze, which has run through all time, and almost every country, in which were enacted deeds of daring and suffering which add a new chapter to the history of human fearlessness and folly.

The Landing was a considerable hamlet for such a wilderness, being the shipping point to Mackenzie River, and, *via* the Lesser Slave Lake, to the Upper Peace. It consisted of the Hudson's Bay Company's establishment, with large storehouses, a sawmill, the residence and church of a Church of England bishop, and a Roman Catholic station, with a variety of shelters in the shape of boarding-houses, shacks and tepees all around. From the number of scows and barges in all stages of construction, and the high timber canting-tackles, it had quite a shipyard-like look, the population being mainly mechanics, who constructed scows, small barges, called "sturgesons," and the old "York," or inland boat, carrying from four to five tons. Here, hauled

up on the bank, was the Hudson's Bay Company's steamer, the *Athabasca*, a well-built vessel about 160 feet long by 28 feet beam. This vessel, it was found, drew too much water for the channel; so there she lay, rotting upon her skids. It was a tantalizing sight to ourselves, who would have been spared many a heart-break had she been fit for service. A more interesting feature of the Landing, however, was the well sunk by the Government borer, Mr. Fraser, for oil, but which sent up gas instead. The latter was struck at a considerable depth, and, when we were there, was led from the shaft under the river bank by a pipe, from which it issued aflame, burning constantly, we were told, summer and winter. Standing at the gateway of the unknown North, and looking at this interesting feature, doubly so from its place and promise, one could not but forecast an industrial future, and "dream on things to come."

Shortly after our arrival at the Landing, news, true or false, reached us that the ice was still fast on Lesser Slave Lake. At any rate, the boat's crew expected from there did not turn up, and a couple of days were spent in anxious waiting. Some freight was delayed as well, and a thunder-storm and a night of rain set the camp in a swim. The non-arrival of our trackers was serious, as we had two scows and a York boat, with a party all told of some fifty souls, and only thirteen available trackers to start with. It seemed more than doubtful whether we could reach Lesser Slave Lake on treaty-schedule time, and the anxiety to push on was great. It was decided to set out as we were and trust to the chapter of accidents. We did not foresee the trials before us, the struggle up a great and swift river, with contrary winds, rainy weather, weak tracking lines and a weaker crew. The chapter of accidents opened, but not in the expected manner.

The York boat and one of the scows were fitted up amid-ships with an awning, which could be run down on all sides when required, but were otherwise open to the weather, and

much encumbered with lading; but all things being in readiness, on the 3rd of June we took to the water, and, a photograph of the scene having been taken, shoved off from the Landing. The boats were furnished with long, cumbrous sweeps, yet not a whit too heavy, since numbers of them snapped with the vigorous strokes of the rowers during the trip. A small sweep, passed through a ring at the stern, served as a rudder, by far the best steering gear for the "sturgeons," but not for a York boat, which is built with a keel and can sail pretty close to the wind. Ordinarily the only sail in use is a lug, which has a great spread, and moves a boat quickly in a fair wind. In a calm, of course, sweeps have to be used, and our first step in departure was to cross the river with them, the boatmen rising with the oars and falling back simultaneously to their seats with perfect precision, and handling the great blades with practised ease. When the opposite shore was reached, the four trackers of each boat leaped into the water, and, splashing up the bank, got into harness at once, and began, with changes to the oars, the unflagging pull which lasted for two weeks. This harness is called by the trackers "otapanápi" —a Cree word—and it must be borne in mind that scarcely any language was spoken throughout this region other than Cree. A little English or French was occasionally heard; but the tongue, domestic, diplomatic, universal, was Cree, into which every half-breed in common talk lapsed, sooner or later, with undisguised delight. It was his mother tongue, copious enough to express his every thought and emotion, and its soft accents, particularly in the mouth of woman, are certainly very musical. Emerson's phrase, "fossil poetry," might be applied to our Indian languages, in which a single stretched-out word does duty for a sentence.

But to the harness. This is simply an adjustment of leather breast-straps for each man, tied to a very long tracking line, which, in turn, is tied to the bow of the boat. The trackers, once in it, walk off smartly along the bank, the

men on board keeping the boats clear of it, and, on a fair path, with good water, make very good time. Indeed, the pull seems to give an impetus to the trackers as well as to the boat, so that a loose man has to lope to keep up with them. But on bad paths and bad water the speed is sadly pulled down, and, if rapids occur, sinks to the zero of a few miles a day. The "spells" vary according to these circumstances, but half an hour is the ordinary pull between "pipes," and there being no shifts in our case, the stoppages for rest and tobacco were frequent. At this rate we calculated that it would take eight or ten days to reach the mouth of Lesser Slave River. Mr. d'Eschambault and myself, having experienced the crowded state of the first and second boats, and foregathered during the trip, decided to take up our quarters on the scow, which had no awning, but which offered some elbow room and a tolerably cozy nook amongst the cases, bales and baggage with which it was encumbered.

We had a study on board, as well, in our steersman, Pierre Cyr, which partly attracted me—a bronzed man, with long, thin, yet fine weather-beaten features, frosty moustache and keenly-gazing, dry, gray eyes—a tall, slim and sinewy man, over seventy years of age, yet agile and firm of step as a man of thirty. Add the semi-silent, inward laugh which Cooper ascribes to his Leather-Stocking, and you have Pierre Cyr, who might have stood for that immortal's portrait. That he had a history I felt sure when I first saw him seated amongst his boatmen at the Landing, and, on seeking his acquaintance, was not surprised to learn that he had accompanied Sir John Richardson on his last journey in Prince Rupert's Land, and Dr. Rae on his eventful expedition to Repulse Bay, in 1853, in search of Franklin. He looked as if he could do it again—a vigorous, alert man, ready and able to track or pole with the best—a survivor, in fact, of the old race of Red River voyageurs, whose record is one of the romances of history.

Another attraction was my companion, Mr. d'E. himself—a man stout in person, quiet by disposition, and of few words; a man, too, with a lineage which connected him with many of the oldest pioneer families of French Canada. His ancestor, Jacques Alexis d'Eschambault, originally of St. Jean de Montaign, in Poitou, came to New France in the 17th century, where, in 1667, he married Marguerite Rene Denys, a relative of the devoted Madame de la Peltrie, and thus became brother-in-law to M. de Ramezay, the owner of the famous old mansion in Montreal, now a museum. Jacques d'Eschambault's son married a daughter of Louis Joliet, the discoverer of the Mississippi, and became a prominent merchant in Quebec, distinguishing himself, it is said, by having the largest family ever known in Canada, viz., thirty-two children. Under the new *régime* my companion's grandfather, like many another French Canadian gentleman, entered the British army, but died in Canada, leaving as heir to his seigneurie a young man whose friendship for Lord Selkirk led him to Red River as a companion, where he subsequently entered the Hudson's Bay Company's service, and died, a chief-factor, at St. Boniface, Man. His son, my companion, also entered the service, in 1857, at his father's post of Isle a la Crosse, served seven years at Cumberland, nine at other distant points, and, finally, fifteen years as trader at Reindeer Lake, a far northern post bordering on the Barren Lands, and famous for its breed of dogs. My friend had some strange virtues, or defects, as the ungodly might call them; he had never used tobacco or intoxicants in his life, a marvellous thing considering his environment. He possessed, besides, a fine simplicity which pleased one. Doubled up in the Edmonton hotel with a waggish companion, he was seen, so the latter affirmed, to attempt to blow out the electric light, a thing which, greatly to his discomfiture, was done by his bed-fellow with apparent ease. Being a man of scant speech, I enjoyed with him betimes the luxury of it. But we had much discourse for

all that, and I learnt many interesting things from this old trader, who seemed taciturn in our little crowd, but was, in reality, a tower of intelligent silence beat about by a flood of good-humoured chaff and loquacity.

At our first night's camp we were still in sight of the Landing, which looked absurdly near, considering the men's hard pull; and from there messengers were sent to Baptiste Lake, the source of Baptiste Creek, which joins the Athabasca a few miles up, and where there was a settlement of half-breed fishermen and hunters, to procure additional trackers if possible. On their unsuccessful return, at eleven a.m., we started again—newo pishawuk, as they call it, “four trackers to the line,” as before—and early in the afternoon were opposite Baptiste Creek, and, weather compelling, rowed across, and camped there that evening. It rained dismally all night, and morning opened with a strong head wind and every symptom of bad weather. A survey party from the Rocky Mountains, in a York boat, tarried at our camp, bringing word that the ice-jam was clear in Lesser Slave Lake, which was cheering, but that we need scarcely look for the expected assistance. They also gave a vague account of the murder of a squaw by her husband for cannibalism, which afterwards proved to be groundless, and, with this comforting information, sped on.

It is ridiculously easy to go down the Athabasca compared with ascending it. The previous evening a Baptiste Lake hunter, bound for the Landing, set out from our camp at a great rate astride of a couple of logs, which he held together with his legs, and disappeared round the bend below in a twinkling. A priest, too, with a companion, arrived about dusk in a canoe, and set off again, intending to beach at the Landing before dark.

Of course, several surmises were current regarding the non-arrival of our trackers, the most likely being Bishop Grouard's, that, as the R. C. Mission boats and men had not come down either, the Indians and half-breeds were too intent upon discussing the forthcoming treaty to stir.

So far it had been the rain and consequent bad tracking which had delayed us; but still we were too weak-handed to make headway without help, and it was at this juncture that the Police contingent stepped manfully into the breach, and volunteered to track one of the boats to the lake. This was no light matter for men unaccustomed to such beastly toil and in such abominable weather; but, having once put their hands to the rope, they were not the men to back down. With unfaltering "go" they pulled on day after day, landing their boat at its destination at last, having worked in the harness and at the sweeps, without relief, from the start almost to the finish.

Meanwhile all enjoyed good health and spirits in spite of the weather. There were fair grounds for the belief that Mr. Ross, who had set out by trail from Edmonton, would reach the lake in time to distribute to the congregated Indians and half-breeds the Government rations stored there for that purpose, and, therefore, our anxiety was not so great as it would otherwise have been.

Our trackers being thus reinforced, the outlook was more satisfactory, not so much in increased speed as in the certainty of progress. The rain had ceased, and though the sky was still lowering, the temperature was higher. Tents were struck, and the boats got under way at once, taking chances on the weather, which, instead of breaking up in another deluge, improved. Eight men were now put to each line, Peokus, a remarkable old Blackfoot Indian, captured and adopted in boyhood by the Crees, and who afterwards attracted the attention of us all, being detailed to lead the Police gang, who, raw and unused to the work, required an experienced tracker at their head.

The country passed through hitherto was rolling, hilly, and densely forested, but, alas, with prostrate trunks and fire-blasted "rampikes," which ranged in all directions in desolate profusion. The timber was Banksian pine, spruce, poplar and birch, much of it merchantable, but not of large size. It was pitiful to see so much wealth destroyed by

recent fires, and that, too, at the possible opening of an era of real value in the near future. The greatest destruction was evidently on the north side of the river, but the south had not escaped.

As regards the soil in these parts, it was, so far, impossible to speak favourably. The hunters described the inland country as a wilderness of sand-hills, surrounded by quaking-bogs, muskegs and soft meadows. Judging by exposures on the river bank, there are, here and there, fertile areas which may yet be utilized; but probably the best thing that could happen to that part of the country would be a great clearing fire to complete the destruction of its dead timber and convert its best parts into prairie and a summer range for cattle.

We were now approaching a portion of the river where the difficulties of getting on were great. The men had to cope with the swift current, bordered by a series of steep gumbo slides, where the tracking was hazardous; where great trees slanted over the water, tottering to their fall, or deep pits and fissures gaped in the festering clay, into which the men often plunged to their arm-pits. It was horrible to look upon. The chain-gang, the galley-slaves—how often the idea of them was recalled by that horrid pull! Yet onward they went, with teeth set and hands bruised by the rope, surmounting difficulty after difficulty with the pith of lions.

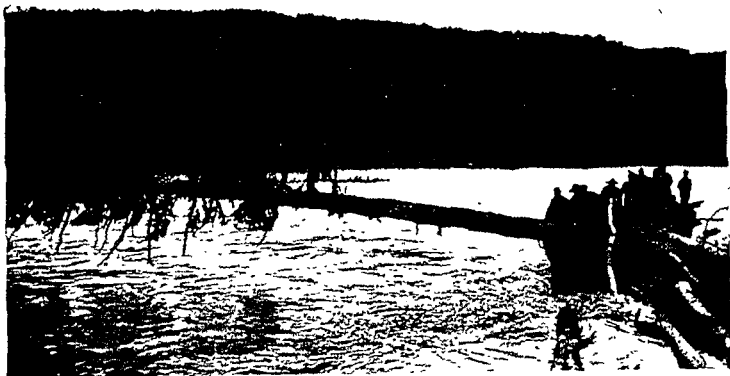
At last a better region was reached, with occasionally a better path. Here the destruction by fire had been stayed, the country improved, and the forest outlines became bold and noble. Hour by hour we crept along a like succession of majestic bends of the river, not yet flushed by the summer freshet, but flowing with superb volume and force. Fully ten miles were made that day, the men tracking like Trojans through water and over difficult ground, but fortunately free from mosquitoes, the constant head winds keeping these effectually down. The cool weather in like manner kept the water down, for it is in this month that the freshet from the

Rocky Mountains generally begins, filling the channel bank-high, submerging the tracking paths, and bearing upon its foaming surface such a mass of uprooted trees and river trash that it is almost impossible to make head against it.

The next morning opened dry and pleasant, but with a milky and foreboding sky. Again the boats were in motion, passing the Pusquatenão, or Naked Hill, beyond which is the Echo Lake—Katoó Sakaígon—where a good many Indians lived, having a pack-trail thereto from the river.

The afternoon proved to be hot, the clouds cumuloëse against a clear, blue sky, with occasional sun-showers. The tracking became better for a time, the lofty benches decreasing in height as we ascended. Innumerable ice-cold creeks poured in from the forest, all of a reddish-yellow cast, and the frequent marks on trees, informing passing hunters of the success of their friends, and the number of stages along the shore for drying meat, indicated a fine moose country.

The next day was treaty day, and we were still a long way from the treaty post. The Police, not yet hardened to the work, felt fagged, but would not own up, a nephew of Sir William Vernon Harcourt bringing up the rear, and all slithering, but hanging to it with dogged perseverance. Nothing, indeed, can be imagined more arduous than this tracking up a swift river, against constant head winds in bad weather. Much of it is in the water, wading up "snies," or tortuous shallow channels, plunging into numberless creeks, clambering up slimy banks, creeping under or passing the line over fallen trees, wading out in the stream to round long spits of sand or boulders, floundering in gumbo slides, tripping, crawling, plunging, and, finally, tottering to the camping-place sweating like horses, and mud to the eyes—but never grumbling. After a whole day of this slavish work, no sooner was the bath taken, supper stowed, and pipes filled, than laughter began, and jokes and merriment ran round the camp-fires as if such things as mud and toil had never existed.



An awkward spot



Severe tracking up the Athabasca River



On the rocks

The old Indian, Peokus, heading the Police line, was a study. His garb was a pair of pants toned down to the colour of the grime they daily sank in, a shirt and corduroy vest to match, a faded kerchief tied around his head, an Assumption sash, and a begrimed body inside of all—a short, squarely built frame, clad with rounded muscles—nothing angular about *him!*—but the nerves within tireless as the stream he pulled against. On the lead, in harness, his long arms swung like pendulums, his whole body leant forward at an acute angle, the gait steady, and the step solid as the tramp of a gorilla. Some coarse black hairs clung here and there to his upper lip; his fine brown eyes were embedded in wrinkles, and his swarthy features, though clumsy, were kindly—a good-humoured face, which, at a cheerful word or glance, lit up at once with the grotesque grin of an animated gargoyle. This was the typical old-time tracker of the North; the toiler who brought in the products of man's art in the East, and took out Nature's returns—the Indian's output—ever since the trade first penetrated these endless solitudes.

The forest scenery now became very striking; primeval masses of poplar and birch foliage, which spread away and upward in smoothest slopes, like vast lawns, studded with the sombre green of the pine tops which towered above them. Here and there the bends of the river crossed at such angles as to enclose a lake-like expanse of water. The river also took a fine colouring from its tributaries, a sort of greenish-yellow tinge, and now became flecked with bubbles and thin foam, so that we feared the freshet, which would have been disastrous.

At mid-day we reached Shoal Island—Pakwáo Ministic—and here the poles were got out and the trackers took the middle of the river for nearly a mile, until deep water was reached. Placer miners had evidently been at work here, but with poor results, we were told. Below Baptiste Creek, however, the yield had been satisfactory, and several miners

had made from \$2.00 to \$2.50 a day over their living expenses. Above the Baptiste there was nothing doing; indeed, we did not pass a single miner at work on the whole route, and it was the best time for their work. The gold is flocculent, its source as mysterious as that of the Saskatchewan, if the theory that the latter was washed out of the Selkirk's before the upheaval of the Rockies is astray.

A fresh moose head, seen lying on the bank, indicated a hunting party, but no human life was seen aside from our own people. Indeed, the absence of life of any kind along the river, excepting the song-birds, which were in some places numerous, was surprising. No deer, no bears, not even a fox or a timber wolf made one's fingers itch for the trigger. A few brent, which took wing afar off, and a high-flying duck or two, were the sole wildings observed, save a big humble-bee which droned around our boat for an instant, then darted off again. Even fish seemed to be anything but plentiful.

That night's camp was hurriedly made in a hummocky fastness of pine and birch, where we found few comfortable bedding-places. In the morning we passed several ice-ledges along shore, the survivals of the severe winter, and, presently, met a canoe with two men from Peace River, crest-fallen "Klondikers," who had "struck it rich," they said, with a laugh, and who reported good water. Next morning a very early start was made, and after some long, strong pulls, and a vigorous spurt, the mouth of the Lesser Slave River opened at last on our sight.

We had latterly passed along what appeared to be fertile soil, a sandy clay country, which improved to the west and south-west at every turn. It had an inviting look, and the "lie," as well, of a region foreordained for settlement. It was irritating not to be able to explore the inner land, but our urgency was too great for that. From what we saw, however, it was easy to predict that thither would flow, in time, the stream of pioneer life and the bustle of attending enterprise and trade.

CHAPTER II.

LESSER SLAVE RIVER AND LESSER SLAVE LAKE.

It is unnecessary to inform the average reader that the Lesser Slave River connects the Lesser Slave Lake with the Athabasca; any atlas will satisfy him upon that point. But its peculiar colouring he will not find there, and it is this which gives the river its most distinctive character. Once seen, it is easy to account for the hue of the Athabasca below the Lesser Slave River; for the water of the latter, though of a pale yellow colour in a glass, is of a rich burnt umber in the stream, and when blown upon by the wind turns its sparkling facets to the sun like the smile upon the cheek of a brunette. Its upward course is like a continuous letter S with occasional S's side by side, so that a point can be crossed on foot in a few minutes which would cost much time to go around. Its proper name, too, is not to be found in the atlases, either English or French. There it is called the Lesser Slave River, but in the classic Cree its name is *Iyaghchi Eennu Sepe*, or the River of the Blackfeet, literally the "River of the Strange People." The lake itself bears the same name, and even now is never called Slave Lake by the Indians in their own tongue. This fact, to my mind, casts additional light upon an obscure prehistoric question, namely, the migration of the great Algic, or Algonquin, race. Its early home was, perhaps, in the far south, or south-west, whence it migrated around the Gulf of Florida, and eastward along the Atlantic coast, spreading up its bays and inlets, and along its great tributary rivers, finally penetrating by the Upper Ottawa to James's, and ultimately to the shores of

Hudson Bay. I know there is strong adverse opinion as to the starting-point of this migration, and I only offer my own as a suggestion based upon the facts stated, and as, therefore, worthy of consideration. Sir Alexander Mackenzie speaks of the Blackfeet "travelling north-westward," and that the Crees were "invaders of the Saskatchewan from the eastward." Indeed, he says the latter were called by the Hudson's Bay Company's officers at York Factory "their home-guards." One thing seems certain, viz., that the Crees got their fire-arms from the English at Hudson Bay in the 17th century. Thence that great tribe, called by themselves the Nahéowuk, but by the Ojibway *Saulteaux* the *Kinistineaux*, and by the voyageurs *Christineaux*, or, more commonly, the Crees—a word derived, some think, from the first syllable of the latter name, or perhaps from the French *crier*, to shout—descended upon the Blackfeet, who probably at that time occupied this region, and undoubtedly the Saskatchewan, and drove them south along a line stretching to the Rocky Mountains.

The tradition of this expulsion is still extant, as also of the great raids made by the Blackfeet and their kindred in times past into their ancient domain. I remember visiting, with my old friend Attakacoop—"Star-Blanket"—the deceased Cree chief, twenty years ago, the triumphal pile of red deer horns raised by the Blackfeet north of Shell River, a tributary of the North Saskatchewan. It is called by the Crees *Ooskunaka Assustakee*, and the chief described its great size in former days, and the tradition of its origin as told to him in his boyhood. Be all this as it may, and this is not the place to pursue the inquiry, the stream in question is, to the Crees who live upon it, not the River of the Slaves, but the "River of the Blackfeet." How it came by its white name is another question. Possibly some captured Indians of the tribe called the Slaves to this day, reduced to servitude by the Crees, were seen by the early voyageurs, and gave rise to the French name, of which ours is a translation.

Slavery was common enough amongst the Indians everywhere. A thriving trade was done at the Detroit in the 18th century in Pawnees, or Panis, as they were called, captured by Indian raiders on the western prairies and sold to the white settlers along the river. I have seen in Windsor, Ont., an old bill of sale of one of these Pani slaves, the consideration being, if I recollect aright, a certain quantity of Indian corn.

To return to the river. The distance from Athabasca Landing to the Lesser Slave is called sixty-five miles, but this must have been ascertained by measuring from point to point, for, following the shore up stream, as boats must, it is certainly more. To the head of the river is an additional sixty miles, and thence to the head of the lake seventy-five more. The Hudson's Bay Company had a storehouse at the Forks, and an island was forming where the waters meet, the finest feature of the place being an echo, which reverberated the bugler's call at *reveille* very grandly.

A spurt was made in the early morning, the trackers first following a bank overgrown with alders and willows, all of a size, which looked exactly like a well-kept hedge, but soon gave way to the usual dense line of poplar and spruce, rooted to the very edges of the banks, which are low compared with those of the Athabasca. After ascending it for some distance, it being Sunday, we camped for the day upon an open grassy point, around which the river swept in a perfect semicircle, the dense forest opposite towering in one equally perfect, and glorious in light and shade and harmonious tints of green, from sombre olive to the lightest pea. The point itself was covered with strawberry vines and dotted with clumps of saskatoons all in bloom.

It was a lovely and lonely spot, which was soon converted into a scene of eating and laughter, and a drying ground for wet clothes. Towards evening Bishop Grouard and Father Lacombe held a well-attended service, which in this profound wilderness was peculiarly impressive. Listening, one thought

how often the same service, these same chants and canticles, had awakened the sylvan echoes in like solitudes on the St. Lawrence and Mississippi in the old days of exploration and trade, and of missionary zeal and suffering. It recalled, too, the thought of man's evanescence and the apparent fixedness of his institutions.

Shortly after our tents were pitched a boat drifted past with five jaded-looking men aboard—more baffled Klondikers returning from Peace River. We had heard of numbers in the interior who could neither go on nor return, and expected to meet more castaways before we reached the lake. In this we were not astray, and several days after in the upper river we met a York boat loaded with them—alert and unmistakable Americans, but with the worn features of disappointed men.

We were now constantly encountering the rapids, which extended for about twenty-five miles, and very difficult and troublesome they proved to be to our heavily-loaded craft. Most of them were got over slowly by combined poling and tracking, the line often breaking with the strain, and the boats being kept in the channel only by the most strenuous efforts of the experienced men on board. If a monias (a greenhorn) took the bow pole, as was sometimes the case, the orders of our steersman, Cyr, were amusing to listen to. "Tughkenay asswayegh tamook!" (Be on your guard!) "Turn de oder way! Turn yourself! Turn your pole—*Hell!*" Then, of course, came the customary rasp on the rocks, but, if not, the cheery cry followed to the trackers ashore, "Ahchipitamook!" (Haul away!) and on we would go for a few yards more. Once, towards the end of this dreary business, when we were all crowded into the Commissioner's boat, where we took our meals, in the first really stiff rapid the keel grated as usual upon the rocks. With a better line we might have pulled through, but it broke, and the boat at once swung broadside to the current and listed on the rocks immovably, though the men struggling in the water did their best to heave her off. The third boat then came up, and

shortly afterwards the Police boat. But getting their steering sweeps fouled and lines entangled, it was nearly an hour before Cyr's boat, being first lightened, could swing to starboard of the York, and take off the passengers. The York boat was then shouldered off the rocks by main force, and all got under way again. At this juncture our old Indian, Peokus—or Pehayokusk, to give him his right name, to wit, "The giblets of a bird"—met with a serious accident, which, much to our regret, laid him up for several days. In his eagerness to help he slipped from a sunken log, and the bruise knocked the wind out of him completely. We took off his wet clothes and rubbed him, and laid him by the fire, where the doctor's care and a liberal dram of spirits soon fetched him to rights. A look of pleased wonder passed over his clumsy features as the latter did its work. Caliban himself could not have been more curiously surprised.

This was not our last stick: there were other awkward rapids near by; but by dint of wading, shouldering, pulling and tracking, we got over the last of them and into a deep channel for good, having advanced only five miles after a day of incessant toil, most of it in the water.

Our camp that night was a memorable one. The day was the fiftieth anniversary of Father Lacombe's ministration as a missionary in the North-West, and all joined in presenting him with a suitable address, handsomely engrossed by Mr. Prudhomme on birch bark, and signed by the whole party. A poem, too, composed by Mr. Coté, a gentleman of literary gifts and taste, also written on bark, was read and presented at the same time.* Père Lacombe made a touching impromptu reply, which was greatly appreciated. Many of us were not of the worthy Father's communion, yet there was but one feeling, that of deep respect for the labours of this celebrated missionary, whose life had been a continuous effort to help the unbefriended Indian into the new but

* The poem, the text of which was secured from the author too late for insertion here, will be found in the Appendix, p. 490.

inevitable paths of self-support, and to shield him from the rapacity of the cold incoming world now surging around him. After the presentation, over a good cigar, the Father told some inimitable stories of Indian life on the plains in the old days, which to my great regret are too lengthy for inclusion here. One incident, however, being *apropos* of himself, must find place. Turning the conversation from materialism, idealism, and the other "isms" into which it had drifted, he spoke of the fears so many have of ghosts, and even of a corpse, and confessed that, from early training, he had shared this fear until he got rid of it in an incident one winter at Lac Ste. Anne. He had been sent for during the night to administer extreme unction to a dying half-breed girl thirteen miles away. Hitching his dogs to their sled he sped on, but too late, for he was met on the trail by the girl's relatives, bringing her dead body wrapped in a buffalo skin, and which they asked him to take back with him and place in his chapel pending service. He tremblingly assented, and the body was duly tied to his sled, the relatives returning to their homes. He was alone with the corpse in the dense and dark forest, and felt the old dread, but reflecting on his office and its duties, he ran for a long distance behind the sled until, thoroughly tired, he stepped on it to rest. In doing this he slipped and fell upon the corpse in a spasm of fear, which, strange to say, when he recovered from it, he felt no more. The shock cured him, and, reaching home, he placed the girl's body in the chapel with his own hands. It reminded him, he said, of a Community at Marseilles whose Superior had died, but whose money was missing. The new Superior sent a young priest who had a great dread of ghosts down to the crypt below the church to open the coffin and search the pockets of the dead. He did so, and found the money; but in nailing on the coffin lid again, a part of his soutane was fastened down with it. The priest turned to go, advanced a step, and, being suddenly held, dropped dead with fright. These gruesome

stories were happily followed by an hour or two of song and pleasantry in Mr. McKenna's tent, ending in "Auld Lang Syne" and "God Save the Queen." It was a unique occasion in which to wind up so laborious a day; and our camp itself was unique—on a lofty bluff overlooking the confluence of the Sauteau River with the Lesser Slave—a bold and beautiful spot, the woods at the angle of the two rivers, down to the water's edge, showing like a gigantic V, as clean-cut as if done by a pair of colossal shears.

Next morning rowing took the place of poling and tracking for a time, and, presently, the great range of lofty hills called, to our right, the Moose Watchi, and to our left, the Tuskanatchi—the Moose and Raspberry Mountains—loomed in the distance. Here, and when only a few miles from the lake, a York boat came tearing down stream full of lithe, young half-breed trackers—our long-expected assistants from the Hudson's Bay Company's post, and whom we would have welcomed much more warmly had they come sooner, for we had little but the lake now to ascend, up which a fair breeze would carry us in a single night.

Doubtless it would have done so if it had come; but the same head-winds and storms which had thwarted us from the first dogged us still. We had camped near the mouth of Muskeg Creek, a good-sized stream, and evidently the cause hitherto of the Lesser Slave's rich chocolate colour; for, above the forks, the latter took its hue from the lake, but with a yellowish tinge still. From this point the river was very crooked, and lined by great hay meadows of luxuriant growth. Skirting these, reinforced as we were, we soon pulled up to the foot of the lake, where stood a Hudson's Bay Company's solitary storehouse. There some change of lading was made, in order to reach "the Island," some seven miles up, and the only one in the lake, sails being hoisted for the first time to an almost imperceptible wind.

The island, where we were to camp simply for the night—as we fondly thought—was found to be a sprawling jumble

of water-worn pebbles, boulders and sand, with a long narrow spit projecting to the east, much frequented by gulls, of whose eggs a large number were gathered. To the south, on the mainland, is the site of the old North-West-Company's post, near to which stood that of the Hudson's Bay-Company, for they always planted themselves cheek by jowl in those days of rivalry, so that there should be no lack of provocation. A dozen half-breed families had now their habitat there, and subsisted by fishing and trapping. On the island our Cree half-breeds enjoyed the first evening's camp by playing the universal button-hiding game called Pugašawin, and which is always accompanied by a monotonous chant and the tom-tom, anything serving for that hideous instrument if a drum is not at hand. They are all inveterate gamblers in that country, and lose or win with equal indifference. Others played a peculiar game of cards called Natwawáquawin, or "Marriage," the loser's penalty being droll, but unmentionable. These amusements, which often spun out till morning, were broken up by another rattling storm, which lasted all night and all the next day. We had lost all count of storms by this time, and were stolidly resigned. The day following, however, the wind was fresh and fair, and we made great headway, reaching the mouth of Swan River—Naposéo Sepe—about mid-day.

This stream is almost choked at its discharge by a conglomeration of slimy roots, weeds and floatwood, and the banks are "a melancholy waste of putrid marshes." It is a forbidding entrance to a river which, farther up, waters a good farming country, including coal in abundance.

The wind being strong and fair, we spun along at a great rate, and expected to reach the treaty point before dark, reckoning, as usual, without our host. The wind suddenly wheeled to the south-west, and a dangerous squall sprang up, which forced us to run back for shelter fully five miles. There was barely time to camp before the gale became furious, raging all night, and throwing down tents like nine-

pins. About one a.m. a cry arose from the night-watch that the boats were swamping. All hands turned out, lading was removed, and the scows hauled up on the shingle, the rollers piling on shore with a height and fury perfectly astonishing for such a lake. By morning the tempest was at its height, continuing all day and into the night. The sunset that evening exhibited some of the grandest and wildest sky scenery we had ever beheld. In the west a vast bank of luminous orange cloud, edged by torn fringes of green and gray; in the south a sea of amethyst, and stretching from north to east masses of steel gray and pearl, shot with brilliant shafts and tufts of golden vapour. The whole sky streamed with rich colouring in the fierce wind, as if possessed at once by the genii of beauty and storm. The boatmen, noting its aspect, predicted worse weather; but, fortunately, morning belied the omens—our trials were over.

We were now nearing Shaw's Point, a long willowed spit of land, called after a whimsical old chief-factor of the Hudson's Bay Company who had charge of this district over sixty years before. He appears to have been a man of many eccentricities, one of which was the cultivation *a la Chinois* of a very long finger-nail, which he used as a spoon to eat his egg. But of him anon. By four p.m. we had rounded his Point, and come into view of Wyawekamon—"The Outlet"—a rudimentary street with several trading stores, a billiard saloon and other accessories of a brand-new village in a very old wilderness.

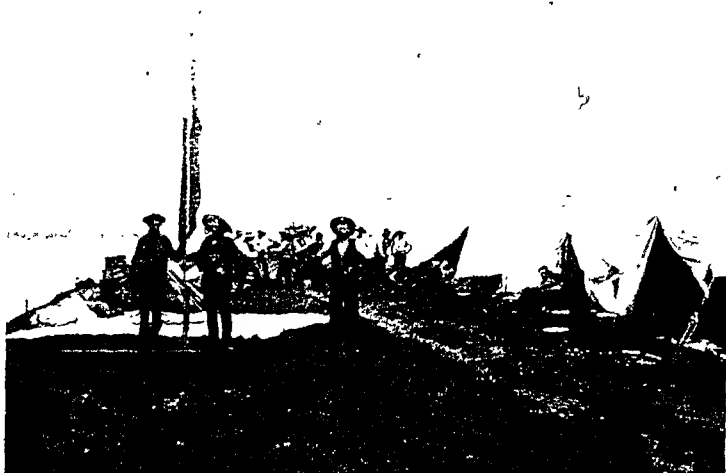
Here we were at the treaty point at last, safe and sound, with new interests and excitements before us; with wild man instead of wild weather to encounter; with discords to harmonize and suspicions to allay by human kindness, perhaps by human firmness, but mainly by the just and generous terms proffered by Government to an isolated but highly interesting and deserving people.

CHAPTER III.

TREATY AT LESSER SLAVE LAKE.

ON the 19th of June our little fleet landed at Willow Point. There was a rude jetty, or wharf, at this place, below the little trading village referred to, at which loaded boats discharged. Formerly they could ascend the sluggish and shallow channel connecting the expansion of the Heart River, called Buffalo Lake, with the head of Lesser Slave Lake, a distance of about three miles, and as far as the Hudson's Bay Company's post, around which another trading village had gathered. This temporary fall in the water level partly accounted for the growth of the village at Willow Point, where sufficient interests had arisen to cause a jealousy between the two hamlets. Once upon a time Atawaywé Kamick was supreme. This is the name the Crees give to the Hudson's Bay Company, meaning literally "the Buying House." But now there were many stores, and "free trade" was rather in the ascendant. In the middle was safety, and therefore the Commissioners decided to pitch camp on a beautiful flat facing the south and fronting the channel, and midway between the two opposing points of trade. A *feu de joie* by the white residents of the region, of whom there were some seventy or eighty, welcomed the arrival of the boats at the wharf, and after a short stay here, simply to collect baggage, a start was made for the camping ground, where our numerous tents soon gave the place the appearance of a village of our own.

Tepees were to be seen in all directions from our camp—the lodges of the Indians and half-breeds. But no sooner was the treaty site apparent than a general concentration



Treaty Camp at Lesser Slave Lake



Indian Tepees



took place, and we were speedily surrounded by a bustling crowd, putting up trading tents and shacks, dancing booths, eating-places, etc., so that with the motley crowd, including a large number of women and children, and a swarm of dogs such as we never dreamt of, amounting in a short space by constant accessions to over a thousand, we were in the heart of life and movement and noise.

Mr. Ross, as already stated, had gone on by trail from Edmonton, partly in order to inspect it, and managed to reach the lake before us, which was fortunate, since Indians and half-breeds had collected in large numbers, and he was thus able to allay their irritation and to distribute rations pending the arrival of the other members of the Commission. During the previous winter, upon the circulation in the North of the news of the coming treaty, discussion was rife, and every cabin and tepee rang with argument. The wiseacre was not absent, of course, and agitators had been at work for some time endeavouring to jaundice the minds of the people—half-breeds, it was said, from Edmonton, who had been vitiated by contact with a low class of white men there—and, therefore, nothing was as yet positively known as to the temper and views of the Indians. But whatever evil effect these tamperings might have had upon them, it was felt that a plain statement of the proposals of the Government would speedily dissipate it, and that, when placed before them in Mr. Laird's customary kind and lucid manner, they would be accepted by both Indians and half-breeds as the best obtainable, and as conducing in all respects to their truest and most permanent interests.

On the 20th the eventful morning had come, and, for a wonder, the weather proved to be calm, clear and pleasant. The hour fixed upon for the beginning of negotiations was two p.m., up to which time much hand-shaking had, of course, to be undergone with the constant new arrivals of natives from the forest and lakes around. The Church of England and Roman Catholic clergy, the only missionary

bodies in the country, met and dined with our party, after which all adjourned to the treaty ground, where the people had already assembled, and where all soon seated themselves on the grass in front of the treaty tent—a large marquee—the Indians being separated by a small space from the half-breeds, who ranged themselves behind them, all conducting themselves in the most sedate and orderly manner.

Mr. Laird and the other Commissioners were seated along the open front of the tent, and one could not but be impressed by the scene, set as it was in a most beautiful environment of distant mountains, waters, forests and meadows, all sweet and primeval, and almost untouched by civilized man. The whites of the region had also turned out to witness the scene, which, though lacking the wild aspect of the old assemblages on the plains in the early 'seventies, had yet a character of its own of great interest, and of the most hopeful promise.

The crowd of Indians ranged before the marquee had lost all semblance of wildness of the true type. Wild men they were, in a sense, living as they did in the forest and on their great waters. But it was plain that these people had achieved, without any treaty at all, a stage of civilization distinctly in advance of many of our treaty Indians to the south after twenty-five years of education. Instead of paint and feathers, the scalp-lock, the breech-clout, and the buffalo-robe, there presented itself a body of respectable-looking men, as well dressed and evidently quite as independent in their feelings as any like number of average pioneers in the East. Indeed, I had seen there, in my youth, many a time, crowds of white settlers inferior to these in sedateness and self-possession. One was prepared, in this wild region of forest, to behold some savage types of men; indeed, I craved to renew the vanished scenes of old. But, alas! one beheld, instead, men with well-washed, unpainted faces, and combed and common hair; men in suits of ordinary "store-clothes," and some even with "boiled" if not laundered shirts. One felt dis-

appointed, almost defrauded. It was not what was expected, what we believed we had a right to expect, after so much waggoning and tracking and drenching, and river turmoil and trouble. This woeful shortcoming from bygone days attended other aspects of the scene. Instead of fiery oratory and pipes of peace—the stone calumets of old—the vigorous arguments, the outbursts of passion, and close calls from threatened violence, here was a gathering of commonplace men smoking briar-roots, with treaty tobacco instead of “weed,” and whose chiefs replied to Mr. Laird’s explanations and offers in a few brief and sensible statements, varied by vigorous appeals to the common sense and judgment, rather than the passions, of their people. It was a disappointing, yet, looked at aright, a gratifying spectacle. Here were men disciplined by good handling and native force out of barbarism—of which there was little to be seen—and plainly on the high road to comfort; men who led inoffensive and honest lives, yet who expressed their sense of freedom and self-support in their speech, and had in their courteous demeanour the unmistakable air and bearing of independence. If provoked by injustice, a very dangerous people this; but self-respecting, diligent and prosperous in their own primitive calling, and able to adopt agriculture, or any other pursuit, with a fair hope of success when the still distant hour for it should arrive.

The proceedings began with the customary distribution of tobacco, and by a reference to the competent interpreters who had been appointed by the Commission, men who were residents, and well known to the Indians themselves, and who possessed their confidence. The Indians had previously appointed as spokesman their Chief and head-man, Keenooshayoo and Moostoos, a worthy pair of brothers, who speedily exhibited their qualities of good sense and judgment, and, Keenooshayo in particular, a fine order of Indian eloquence, which was addressed almost entirely to his own people, and which is lost, I am sorry to say, in the account here set down.

Mr. Laird then rose, and having unrolled his Commission, and that of his colleagues, from the Queen, proceeded with his proposals. He spoke as follows:

"Red Brothers! we have come here to-day, sent by the Great Mother to treat with you, and this is the paper she has given to us, and is her Commission to us signed with her Seal, to show we have authority to treat with you. The other Commissioners, who are associated with me, and who are sitting here, are Mr. McKenna and Mr. Ross and the Rev. Father Lacombe, who is with us to act as counsellor and adviser. I have to say, on behalf of the Queen and the Government of Canada, that we have come to make you an offer. We have made treaties in former years with all the Indians of the prairie, and from there to Lake Superior. As white people are coming into your country, we have thought it well to tell you what is required of you. The Queen wants all the whites, half-breeds and Indians to be at peace with one another, and to shake hands when they meet. The Queen's laws must be obeyed all over the country, both by the whites and the Indians. It is not alone that we wish to prevent Indians from molesting the whites, it is also to prevent the whites from molesting or doing harm to the Indians. The Queen's soldiers are just as much for the protection of the Indians as for the white man. The Commissioners made an appointment to meet you at a certain time, but on account of bad weather on river and lake, we are late, which we are sorry for, but are glad to meet so many of you here to-day.

"We understand stories have been told you, that if you made a treaty with us you would become servants and slaves; but we wish you to understand that such is not the case, but that you will be just as free after signing a treaty as you are now. The treaty is a free offer; take it or not, just as you please. If you refuse it there is no harm done; we will not be bad friends on that account. One thing Indians must understand, that if they do not make a treaty they must

obey the laws of the land—that will be just the same whether you make a treaty or not; the laws must be obeyed. The Queen's Government wishes to give the Indians here the same terms as it has given all the Indians all over the country, from the prairies to Lake Superior. Indians in other places, who took treaty years ago, are now better off than they were before. They grow grain and raise cattle like the white people. Their children have learned to read and write.

“Now, I will give you an outline of the terms we offer you. If you agree to take treaty, every one this year gets a present of \$12.00. A family of five, man, wife and three children, will thus get \$60.00; a family of eight, \$96.00; and after this year, and for every year afterwards, \$5.00 for each person forever. To such chiefs as you may select, and that the Government approves of, we will give \$25.00 each year, and the counsellors \$15.00 each. The chiefs also get a silver medal and a flag, such as you see now at our tent, right now as soon as the treaty is signed. Next year, as soon as we know how many chiefs there are, and every three years thereafter, each chief will get a suit of clothes, and every counsellor a suit, only not quite so good as that of the chief. Then, as the white men are coming in and settling in the country, and as the Queen wishes the Indians to have lands of their own, we will give one square mile, or 640 acres, to each family of five; but there will be no compulsion to force Indians to go into a reserve. He who does not wish to go into a band can get 160 acres of land for himself, and the same for each member of his family. These reserves are holdings you can select when you please, subject to the approval of the Government, for you might select lands which might interfere with the rights or lands of settlers. The Government must be sure that the land which you select is in the right place. Then, again, as some of you may want to sow grain or potatoes, the Government will give you ploughs or harrows, hoes, etc., to enable you to do

so, and every spring will furnish you with provisions to enable you to work and put in your crop. Again, if you do not wish to grow grain, but want to raise cattle, the Government will give you bulls and cows, so that you may raise stock. If you do not wish to grow grain or raise cattle, the Government will furnish you with ammunition for your hunt, and with twine to catch fish. The Government will also provide schools to teach your children to read and write, and do other things like white men and their children. Schools will be established where there is a sufficient number of children. The Government will give the chiefs axes and tools to make houses to live in and be comfortable. Indians have been told that if they make a treaty they will not be allowed to hunt and fish as they do now. This is not true. Indians who take treaty will be just as free to hunt and fish all over as they now are.

“In return for this the Government expects that the Indians will not interfere with or molest any miner, traveller or settler. We expect you to be good friends with everyone, and shake hands with all you meet. If any whites molest you in any way, shoot your dogs or horses, or do you any harm, you have only to report the matter to the police, and they will see that justice is done to you. There may be some things we have not mentioned, but these can be mentioned later on. Commissioners Walker and Côté are here for the half-breeds, who later on, if treaty is made with you, will take down the names of half-breeds and their children, and find out if they are entitled to scrip. The reason the Government does this is because the half-breeds have Indian blood in their veins, and have claims on that account. The Government does not make treaty with them, as they live as white men do, so it gives them scrip to settle their claims at once and forever. Half-breeds living like Indians have the chance to take the treaty instead, if they wish to do so. They have their choice, but only after the treaty is signed. If there is no treaty made, scrip cannot be given. After the

treaty is signed, the Commissioners will take up half-breed claims. The first thing they will do is to give half-breed settlers living on land 160 acres, if there is room to do so; but if several are settled close together, the land will be divided between them as fairly as possible. All, whether settled or not, will be given scrip for land to the value of \$240.00, that is, all born up to the date of signing the treaty. They can sell that scrip, that is, all of you can do so. They can take, if they like, instead of this scrip for 240 acres, lands where they like. After they have located their land, and got their title, they can live on it, or sell part, or the whole of it, as they please, but cannot sell the scrip. They must locate their land, and get their title before selling.

"These are the principal points in the offer we have to make to you. The Queen owns the country, but is willing to acknowledge the Indians' claims, and offers them terms as an offset to all of them. We shall be glad to answer any questions, and make clear any points not understood. We shall meet you again to-morrow, after you have considered our offer, say about two o'clock, or later if you wish. We have other Indians to meet at other places, but we do not wish to hurry you. After this meeting you can go to the Hudson's Bay fort, where our provisions are stored, and rations will be issued to you of flour, bacon, tea and tobacco, so that you can have a good meal and a good time. This is a free gift, given with goodwill, and given to you whether you make a treaty or not. It is a present the Queen is glad to make to you. I am now done, and shall be glad to hear what any one has to say."

KEENOOSHAYO (The Fish): "You say we are brothers. I cannot understand how we are so. I live differently from you. I can only understand that Indians will benefit in a very small degree from your offer. You have told us you come in the Queen's name. We surely have also a right to say a little as far as that goes. I do not understand what you say about every third year."

MR. McKENNA: "The third year was only mentioned in connection with clothing."

KEENOOSHAYO: "Do you not allow the Indians to make their own conditions, so that they may benefit as much as possible? Why I say this is that we to-day make arrangements that are to last as long as the sun shines and the water runs. Up to the present I have earned my own living and worked in my own way for the Queen. It is good. The Indian loves his way of living and his free life. When I understand you thoroughly I will know better what I shall do. Up to the present I have never seen the time when I could not work for the Queen, and also make my own living. I will consider carefully what you have said."

MOOSTOOS (The Bull): "Often before now I have said I would carefully consider what you might say. You have called us brothers. Truly I am the younger, you the elder brother. Being the younger, if the younger ask the elder for something, he will grant his request the same as our mother the Queen. I am glad to hear what you have to say. Our country is getting broken up. I see the white man coming in, and I want to be friends. I see what he does, but it is best that we should be friends. I will not speak any more. There are many people here who may wish to speak."

WAHPPEEHAYO (White Partridge): "I stand behind this man's back" (pointing to Keenooshayo). "I want to tell the Commissioners there are two ways, the long and the short. I want to take the way that will last longest."

NEESNETASIS (The Twin): "I follow these two brothers, Moostoos and Keenooshayo. When I understand better I shall be able to say more."

MR. LAIRD: "We shall be glad to hear from some of the Sturgeon Lake people."

THE CAPTAIN (an old man): "I accept your offer. I am old and miserable now. I have not my family with me here, but I accept your offer."



Keenooshayo addressing the Commission at Lesser Slave Lake



MR. LAIRD: "You will get the money for all your children under age, and not married, just the same as if they were here."

THE CAPTAIN: "I speak for all those in my part of the country."

MR. LAIRD: "I am sorry the rest of your people are not here. If here next year their claims will not be overlooked."

THE CAPTAIN: "I am old now. It is indirectly through the Queen that we have lived. She has supplied in a manner the sale shops through which we have lived. Others may think I am foolish for speaking as I do now. Let them think as they like. I accept. When I was young I was an able man and made my living independently. But now I am old and feeble and not able to do much."

MR. ROSS: "I will just answer a few questions that have been put. Keenooshayo has said that he cannot see how it will benefit you to take treaty. As all the rights you now have will not be interfered with, therefore anything you get in addition must be a clear gain. The white man is bound to come in and open up the country, and we come before him to explain the relations that must exist between you, and thus prevent any trouble. You say you have heard what the Commissioners have said, and how you wish to live. We believe that men who have lived without help heretofore can do it better when the country is opened up. Any fur they catch is worth more. That comes about from competition. You will notice that it takes more boats to bring in goods to buy your furs than it did formerly. We think that as the rivers and lakes of this country will be the principal highways, good boatmen, like yourselves, cannot fail to make a good living, and profit from the increase in traffic. We are much pleased that you have some cattle. It will be the duty of the Commissioners to recommend the Government, through the Superintendent-General of Indian Affairs, to give you cattle of a better breed. You say that you consider that you have a right to say something about

the terms we offer you. We offer you certain terms, but you are not forced to take them. You ask if Indians are not allowed to make a bargain. You must understand there are always two to a bargain. We are glad you understand the treaty is forever. If the Indians do as they are asked we shall certainly keep all our promises. We are glad to know that you have got on without any one's help, but you must know times are hard, and furs scarcer than they used to be. Indians are fond of a free life, and we do not wish to interfere with it. When reserves are offered you there is no intention to make you live on them if you do not want to, but, in years to come, you may change your minds, and want these lands to live on. The half-breeds of Athabasca are being more liberally dealt with than in any other part of Canada. We hope you will discuss our offer and arrive at a decision as soon as possible. Others are now waiting for our arrival, and you, by deciding quickly, will assist us to get to them."

KEENOOSHAYO: "Have you all heard? Do you wish to accept? All who wish to accept, stand up!"

WENDIGO: "I have heard, and accept with a glad heart all I have heard."

KEENOOSHAYO: "Are the terms good forever? As long as the sun shines on us? Because there are orphans we must consider, so that there will be nothing to be thrown up to us by our people afterwards. We want a written treaty, one copy to be given to us, so we shall know what we sign for. Are you willing to give means to instruct children as long as the sun shines and water runs, so that our children will grow up ever increasing in knowledge?"

MR. LAIRD: "The Government will choose teachers according to the religion of the band. If the band are pagans the Government will appoint teachers who, if not acceptable, will be replaced by others. About treaties lasting forever, I will just say that some Indians have got to live so like the whites that they have sold their lands, and

divided the money. But this only happens when the Indians ask for it. Treaties last forever, as signed, unless the Indians wish to make a change. I understand you all agree to the terms of the Treaty. Am I right? If so, I will have the Treaty drawn up, and to-morrow we will sign it. Speak, all those who do not agree!"

Moostoos: "I agree."

KEENOOSHAYO: "My children, all who agree, stand up!"

The Reverend Father Lacombe then addressed the Indians in substance as follows: He reminded them that he was an old friend, and came amongst them seven years ago, and, being now old, he came again to fulfil another duty, and to assist the Commission to make a treaty. "Knowing you as I do, your manners, your customs and language, I have been officially attached to the Commission as adviser. To-day is a great day for you, a day of long remembrance, and your children hereafter will learn from your lips the events of to-day. I consented to come here because I thought it was a good thing for you to take the Treaty. Were it not in your interest I would not take part in it. I have been long familiar with the Government's methods of making treaties with the Saulteaux of Manitoba, the Crees of Saskatchewan, and the Blackfeet, Bloods and Piegans of the Plains, and advised these tribes to accept the offers of the Government. Therefore, to-day, I urge you to accept the words of the Big Chief who comes here in the name of the Queen. I have known him for many years, and, I can assure you, he is just and sincere in all his statements, besides being vested with authority to deal with you. Your forest and river life will not be changed by the Treaty, and you will have your annuities, as well, year by year, as long as the sun shines and the earth remains. Therefore I finish my speaking by saying, Accept!"

The chiefs and counsellors stood up, and requested all the Indians to do so also as a mark of acceptance of the Government's conditions. Father Lacombe was thanked by

several for having come so far, though so very old, to visit them and speak to them, after which the meeting adjourned until the following day.

At three p.m. on Wednesday, the 21st, the discussion was resumed by Mr. Laird, who, after a few preliminary remarks, read the Treaty, which had been drafted by the Commissioners the previous evening. Chief Keenooshayo arose and made a speech, followed by Moostoos, both assenting to the terms, when suddenly, and to the surprise of all, the chief, who had again begun to address the Indians, perceiving gestures of dissent from his people, suddenly stopped and sat down. This looked critical; but, after a somewhat lengthy discussion, everything was smoothed over, and the chief and head men entered the tent and signed the Treaty after the Commissioners, thus confirming, for this portion of the country, the great Treaty which is intended to cover the whole northern region up to the sixtieth parallel of north latitude. The satisfactory turn of the Lesser Slave Lake Treaty, it was felt, would have a good effect elsewhere, and that, upon hearing of it at the various treaty points to the west and north, the Indians would be more inclined to expedite matters, and to close with the Commissioner's proposals.*

The text of the Treaty itself, which may be of interest to the reader, will be found in full in the Appendix, page 471.

The first and most important step having been taken, the other essential adhesions had now to be effected. To save time and wintering in the country, the Treaty Commission separated, Messrs. Ross and McKenna leaving on the 22nd

*The foregoing report of the Treaty discussions is necessarily much abridged, being simply a transcript of brief notes taken at the time. The utterances particularly of Keenooshayo, but also of his brother, were not mere harangues addressed to the "groundlings," but were grave statements marked by self-restraint, good sense and courtesy, such as would have done no discredit to a well-bred white man. They furthered affairs greatly, and in two days the Treaty was discussed and signed, in singular contrast with treaty-making on the plains in former years.



Mr. Laird addressing the Beavers and Crees at Fort Vermilion



for Fort Dunvegan and St. John, whilst Mr. Laird set out shortly afterwards for Vermilion and Fond du Lac, on Lake Athabasca. He reached Peace River Crossing on the 30th, and met there, next day, a few Beaver Indians and the Crees of the region. The Beaver chief, who was present, did not adhere, saying that his band was at Fort Dunvegan, and that he could not get there in time. The date of the St. John Treaty had been fixed for the 21st of June, but, owing to the detentions described, the appointment could not be kept, and word was therefore sent to the Indians to stay where they were until they could be met. But when the Commissioners were within twenty-five miles of the Fort they got a letter from the Hudson's Bay Company's agent telling them that the Indians had eaten up all the provisions there, and had left for their hunting-grounds, with no hope of their coming together again that season. They therefore returned to Fort Dunvegan, and took the adhesion of some Beaver Indians, and then left for Lower Peace River. On the 8th July, Mr. Laird secured the adhesion of the Crees and Beavers at Fort Vermilion, and Messrs. Ross and McKenna of those at Little Red River, the headman there refusing to sign at first because, he said, "he had a divine inspiration to the contrary"! This was followed by adhesions taken by the latter Commissioners, on the 13th, from the Crees and Chipewyans at Fort Chipewyan.

"Here it was," Mr. McKenna writes me, "that the chief asked for a railway—the first time in the history of Canada that the red man demanded as a condition of cession that steel should be laid into his country. He evidently understood the transportation question, for a railway, he said, by bringing them into closer connection with the market, would enhance the value of what they had to sell, and decrease the cost of what they had to buy. He had a striking object-lesson in the fact that flour was \$12 a sack at the Fort. These Chipewyans lost no time in flowery oratory, but came at once to business, and kept us, myself in particular, on

tenterhooks for two hours. I never felt so relieved as when the rain of questions ended, and, satisfied by our answers, they acquiesced in the cession."

Next morning these Commissioners left for Smith's Landing, and, on the 17th, made treaty with the Indians of Great Slave Lake. Meanwhile Mr. Laird had proceeded to Fond du Lac, at the eastern end of Lake Athabasca, and there, on the 27th, the Chipewyans adhered, whilst Messrs. Ross and McKenna, in order to treat with the Indians at Fort McMurray and Wahpooškow, separated. The latter secured the Chipewyans and Crees at the former post, and Mr. Ross the Crees at Wahpooškow, both adjustments, by a coincidence, being made on the same day.

This completed the Treaty of 1889, known as No. 8, the most important of all since the Great Treaty of 1876.

The work of the Commission being now over, its members prepared to leave the country. Messrs. Ross and McKenna set out for Athabasca Landing, whilst Mr. Laird accompanied us to Pelican Rapids, but left us there and pushed on, like the others, for home.

There were, of course, many Indians who did not or could not turn up at the various treaty points that year, viz., the Beavers of St. John, the Crees of Sturgeon Lake, the Slaves of Hay River, who should have come to Vermilion, and the Dog-Ribs, Yellow-Knives, Slaves, and Chipewyans, who should have been treated with at Fort Resolution, on Great Slave Lake.

Accordingly, a special commission was issued to Mr. J. A. Macrae, of the Indian Office in Ottawa, who met the Indians the following year at the points named, and in May, June, and July, secured the adhesion of over 1,200 souls, making, with subsequent adhesions, a total of 3,568 souls to the 30th June, 1906.

The largest numbers were at Forts Resolution, Vermilion, Fond du Lac, and Lesser Slave Lake, the latter ranking fourth in the list. Of course, there are still to be treated

with the Indians of the Mackenzie River and the Esquimaux of the Arctic coast. But Treaty Eight covers the most valuable portions of the Northern Anticlinal, though this is a conjecture, as the resources of the lower Mackenzie Basin, and even of the Barren Lands, are only now becoming known, and may yet prove to be of great value. Bishop Grouard told me that at their Mission at Fort Providence, potatoes, turnips and barley ripened, and also wheat when tried, though this, he thought, was uncertain. I have also heard Chief-factor Camsell speak quite boastfully of his tomatoes at Fort Simpson. As a matter of fact, little is known practically as to the bearing of the climate and long summer sunshine on agriculture in the Mackenzie District. But be that region what it may, there has been already ceded an empire in itself, extending, roughly speaking, from the 54th to the 60th parallel of north latitude, and from the 106th to the 130th degree of west longitude. In this domain there is ample room for millions of people; and, as I must now return to the Half-breed Commission on Lesser Slave Lake, I shall give, as we go, as fair a picture as I can of its superficial features and the inducements it offers to the immigrant.

CHAPTER IV.

THE HALF-BREED SCRIP COMMISSION.

THE adjustment with the half-breeds depended, of course, upon a successful treaty with the Indians, and, this having been concluded, the latter at once, upon receipt of their payments, left for their forests and fisheries, leaving the half-breeds in full possession of the field.

It was estimated that over a hundred families were encamped around us, some in tepees, some in tents, and some in the open air, the willow copses to the north affording shelter, as well, to a few doubtful members of Slave Lake society, and to at least a thousand dogs. The "scrip tent," as it was called, a large marquee fitted up as an office, had been pitched with the other tents when the camp was made, and in this the half-breeds held a crowded meeting to talk over the terms, and to collate their own opinions as to the form of scrip issue they most desired. In this they were singularly unanimous, and, in spite of advice to the contrary urged upon them in the strongest manner by Father Lacombe, they agreed upon "the bird in the hand"—viz., upon cash scrip or nothing. This could be readily turned into money, for in the train of traders, etc., who followed up the treaty payments, there were also buyers from Winnipeg and Edmonton, well supplied with cash, to purchase all the scrip that offered, at a great reduction, of course, from face value. Whether the half-breeds were wise or foolish it is needless to say. One thing was plain, they had made up their minds. Under the circumstances it was impossible to gainsay their assertion that they were the best judges of their own needs.



Half-breed Commission tent at Lesser Slave Lake



The Commission at work



Scene in the Scrip marquee at Lesser Slave Lake. Note the smart Half-breed girls to the left and the old-fashioned mother near them

All preliminaries having at last been settled, the taking of declarations and evidence began on the 23rd of June, and, shortly afterwards, the issue of convertible scrip certificates, or scrip certificates for land as required, took place to the parties who had proved their title.

This was a slow process, involving in every case a careful search of the five elephant folios containing the records of the bygone issues of scrip in Manitoba and the organized Territories.

It was necessary in order to prevent the issue of scrip to parties who had already received it elsewhere. But to the credit of the Lesser Slave Lake community, few efforts were made to "come in" again, not one in fact which was a clear attempt at fraud, or which could not be accounted for by false agency. Indeed, a high tribute might well be paid here to the honesty, not only of this but of all the communities, both Indian and half-breed, throughout these remote territories. We found valuable property exposed everywhere, evidently without fear of theft. There was a looser feeling regarding debts to traders, which we were told were sometimes ignored, partly, perhaps, owing to the traders' heavy profits, but mainly through failure in the hunt and a lack of means. But theft such as white men practice was a puzzle to these people, amongst whom it was unknown.

The most noticeable feature of the scrip issue was the never-ending stream of applicants, a surprising evidence of the growth of population in this remote wilderness. Its most interesting feature lay in the peculiarities and manners of the people themselves. They were unquestionably half-breeds, and had received Christian names, and most of them had houses of their own, and, though hunters, fishermen and trippers, their families lived comparatively settled lives. Yet the glorious instinct of the Indian haunted them. As a rule they had been born on the "pitching-track," in the forest, or on the prairies—in all sorts of places, they could

not say exactly where—and when they were born was often a matter of doubt as well.* It was not in February, but in Meeksuo pésim, “The month when the eagles return”; not in August, but in Oghpáho pésim, “The month when birds begin to fly.” When called upon they could give their Christian names and answer to William or Magloire, to Mary or Madeline, but, in spite of priest or parson, their home name was a Cree one. In many cases the white forefather’s name had been dropped or forgotten, and a Cree surname had taken its place, as, for example, in the name Louis Maskegósiss, or Madeline Nooskeyah. Some of the Cree names were in their meaning simply grotesque. Mishoóstiquan meant “The man who stands with the red hair”; Waupunékapow, “He

*With reference to these nondescript birthplaces, the wonderful ease of parturition among Indian women may be referred to here. This is common, probably, to all primitive races, but is perhaps more marked amongst Indian mothers than any other. The event may happen in a canoe, on the trail, at any place, or at any moment, without hindering the ordinary progress of a travelling party, which is generally overtaken by the mother in a few hours. But nothing I heard here equalled in grotesque circumstances occurrences, whose truth I can vouch for, many years ago on the Saskatchewan River. In 1874, if I remember aright, a great spring freshet in the North Branch was accompanied by a tremendous ice-jam, which backed the water up, and flooded the river bank so suddenly that many Indians were drowned. On an island below Prince Albert, a woman, to save her life, had to climb a neighbouring tree, and gave birth to a child amongst the branches. The jam broke, and, wonderful to say, both mother and child got down to firm ground alive. Another case, even more gruesome, happened on the Lower Saskatchewan not so many years ago. A woman and her husband were hastening on snowshoes from their winter camp to the river, in order to share in the usual Christmas bounty and festivities at the Hudson’s Bay Company’s post. The woman was seized with incipient labour, and, darting from her husband, with whom she had been quarrelling on the way, pushed on, and, in a frozen marsh, amongst bulrushes, on a bitterly cold night, was delivered of a child. Grumous as she was, she picked herself up, and, with incredible nerve, walked ten miles to the Pas, carrying her live infant with her, wrapped in a rabbit-skin robe.

who stands till morning." One of the applicants was Kanawatchaguáyo, or "The ghost-keeper."*

But others were strikingly poetical, particularly the female names. Payúcko geesigo, "One in the Skies"; Pesawakoona kapesisk, "The silent snow in falling forming signs or symbols"; Matyatse wunoguayo, or rather, for this is a doubtful name, Powástjaka nunaghquánetungh, "Listener to the unseen rapids"; Kese koo ápeoo, "She sits in Héaven," were all the names of applicants for scrips, and many others could be added of like tenor. In a word, the Christian or baptismal names have not displaced the native ones, as they did in Wales and elsewhere, and amongst some of our far Eastern Indians. But there were terrifying and repulsive names as well, such as Sese kenápiik kaow apeoo, "She sits like a rattle-snake"; and one individual rejoiced in the appalling surname of "Grand Bastard." These instances serve to illustrate the tendency of half-breed nomenclature at the lake towards the mother's side. Here, too, there was no reserve in giving the family name; it was given at once when asked for, and there was no shyness otherwise in demeanour. There was a readiness, for example, to be photographed which was quite distinctive. In this connection it may interest the reader to recall some of the names of girls given by the same race thousands of miles away in the East. Take those recorded by Mrs. Jameson† during her visit to Mrs. McMurray and the Schoolcrafts, on the Island of Mackinac, over seventy

*It may be mentioned here that this half-breed's "inner" name, so to speak, meant "The Ghost-Keeper," for the name he gave, following an Indian usage, was not the real one. Kanawatchaguáyo was the one given by the interpreter, but accompanied by the translation of the inner name, to wit, "The Ghost-Keeper." This curious custom is more fully referred to in a forthcoming work on Indian folk-lore, traditions, legends, usages, methods and manner of life, etc., by Mrs. F. H. Paget, of Ottawa. This lady is an expert Cree scholar, and her work, which I have had the pleasure of hearing her read, is the result of diligent research and of ample knowledge of Indian life and character.

† "Winter Studies and Summer Rambles," 1835.

years ago: Oba baumwawa geezegoquay, "The Sounds which the stars make rushing through the skies"; Zaga see goquay, "Sunbeams breaking through a cloud"; Wah-sagewanoquay, "Woman of the bright foam." The people so far apart, yet their home names so similarly figurative! The education of the Red Indian lies in his intimate contact with nature in all her phases—a good education truly, which serves him well. But, awe-struck always by the mysterious beauty of the world around him, his mind reflects it instinctively in his Nature-worship and his system of names.

In speaking of the "Lakers" I refer, of course, to the primitive people of the region, and not to half-breed incomers from Manitoba or elsewhere. There were a few patriarchal families into which all the others seemed to dovetail in some shape or form. The Noóskeyah family was one of these, also the Gladu, the Cowitoreille,* and the Calahaisen. The collateral branches of these families constituted the main portion of the native population, and yet inbreeding did not seem to have deteriorated the stock, for a healthier-looking lot of young men, women and children it would be hard to find, or one more free from scrofula. There were instances, too, among these people, of extreme old age; one in particular which from confirmatory evidence, particularly the declarations of descendants, seemed quite authentic. This was a woman called Catherine Bisson—the daughter of Baptiste Bisson and an Indian woman called Iskwaö—who was born on New Year's Day, 1793, at Lesser Slave Lake, and had spent all her life there since. She had a numerous progeny which she bore to Kisiškakápo, "The man who stands still." She was now blind, and was partly led, partly carried into our tent—a small, thin, wizened woman, with keen features and a tongue as keen, which cackled and joked at a great rate with the crowd around her. It was almost awesome to look at this weird piece of antiquity, who was born in the Reign of Terror, and was a young woman before

* A corruption, no doubt, of "Courtoreille."

the war of 1812. She was quite lively yet, so far as her wits went, and seemed likely to go on living.*

There were many good points in the disposition of the "Lakers" generally, both young and old. Their kindness and courtesy to strangers and to each other was marked, and profanity was unknown. Indeed, if one heard bad language at all it was from the lips of some Yankee or Canadian teamster, airing his superior knowledge of the world amongst the natives.

The place, in fact, surprised one—no end of buggies, buckboards and saddles, and brightly dressed women, after a not altogether antique fashion; the men, too, orderly, civil, and obliging. Infants were generally tucked into the comfortable moss-bag, but boys three or four years old were seen tugging at their mothers' breasts, and all fat and generally good-looking. The whole community seemed well fed, and were certainly well clad—some girls extravagantly so, the love of finery being the ruling trait here as elsewhere. One lost, indeed, all sense of remoteness, there was such a well-to-do, familiar air about the scene, and such a bustle of clean-looking people. How all this could be supported by fur it was difficult to see, but it must have been so, for there was, as yet, little or no farming amongst the old "Lakers." It was, of course, a great fur country, and though the fur-bearing animals were sensibly diminishing, yet the prices of peltries had risen by competition, whilst supplies had been correspondingly cheapened. It was a good marten country, and, as this fur was the fad of fashion, and brought an extravagant price, the animal, like the beaver, was threatened with extinction, the more so as the rabbits were then in their period of scarcity.

There were other aspects of Lake life which there is neither space nor inclination to describe. If some features

*This very old woman died, I believe, at Lesser Slave Lake only last spring (1908). If the date of her birth was correct, and we had good reason to believe it, she must have been far over 100 years old when she died.

of "advanced civilization" had been anticipated there, it was simply another proof that extremes meet.

Whatever else was hidden, however, there was one thing omnipresent, namely, the mongrel dog. It was hopeless to explore the origin of an animal which seemed to draw from all sources, including the wolf and fox, and whose appetite stopped at nothing, but attacked old shirts, trousers, dunnage-bags, fry-pans, and even the outfit of a geologist, to appease the sacred rage of hunger.

It was believed that over a thousand of these dogs, mainly used in winter to haul fish, surrounded our tent, and when it is said that an ordinary half-breed family harboured from fifteen to twenty of the tribe, there is no exaggeration in the estimate. They were of all shapes, sizes and colours, and, though very civil to man, from whom they got nothing but kicks and stones, they kept up a constant row amongst themselves.

To see a scrimmage of fifty or sixty of them on land or in the water, where they went daily to fish, was a scene to be remembered. They did not bark, but loped through the woods, which were the camp's latrines, as scavengers by day, and howled in unison at regular intervals by night; for there was a sort of horrible harmony in the performance, and when the tom-toms of the gamblers accompanied it on all sides, and the pounding of dancers' feet—for in this enchanted land nobody ever seemed to go to bed—the saturnalia was complete.

It was indeed a gala time for the happy-go-lucky Lakers, and the effects of the issue and sale of scrip certificates were soon manifest in our neighbourhood. The traders' booths were thronged with purchasers, also the refreshment tents where cigars and ginger ale were sold; and, in tepees improvised from aspen saplings, the sporting element passed the night at some interesting but easy way of losing money, illuminating their game with guttering candles, minus candlesticks, and presenting a picture worthy of an impressionist's pencil.

But the two dancing floors were the chief attraction. These also had been walled and roofed with leafy saplings, their fronts open to the air, and, thronged as they generally were, well repaid a visit. Here the comely brunettes, in moccasins or slippers, their luxuriant hair falling in a braided queue behind their backs, served not only as tireless partners, but as foils to the young men, who were one and all consummate masters of step-dancing, an art which, I am glad to say, was still in vogue in these remote parts. "French-fours" and the immortal "Red River Jig" were repeated again and again, and, though a tall and handsome young half-breed, who had learned in Edmonton, probably, the airs and graces of the polite world, introduced cotillons and gave "the calls" with vigorous precision, yet his efforts were not thoroughly successful. Snarls arose, and knots and confusion, which he did his best to undo. But it was evident that the hearts of the dancers were not in it. No sooner was the fiddler heard lowering his strings for the time-honoured "Jig" than eyes brightened, and feet began to beat the floor, including, of course, those of the fiddler himself, who put his whole soul into that weird and wonderful melody, whose fantastic glee is so strangely blended with an indescribable master-note of sadness. The dance itself is nothing; it might as well be called a Rigadoon or a Sailor's Hornpipe, so far as the steps go. The tune is everything; it is amongst the immortals. Who composed it? Did it come from Normandy, the ancestral home of so many French Canadians and of French Canadian song? Or did some lonely but inspired voyageur, on the banks of Red River, sighing for Detroit or Trois Rivières—for the joys and sorrows of home—give birth to its mingled chords in the far, wild past?

As I looked on, many memories recurred to me of scenes like this in which I had myself taken part in bygone days—*Eheu! fugaces*—in old Red River and the Saskatchewan; and, with these in my heart, I retired to my tent, and gradually fell asleep to the monotonous sound of the familiar yet inexplicable air.

CHAPTER V.

RESOURCES OF LESSER SLAVE LAKE REGION.

It was expected that the sergeant of the Mounted Police stationed at the Lake would have set out by boat on the 3rd for Athabasca Landing, taking with him the witnesses in the Weeghteko case—a case not common amongst the Lesser Slave Lake Indians, but which was said to be on the increase. One Pahaño—"The Pheasant"—had gone mad and threatened to kill and eat people. Of course, this was attributed by his tribe to the Weeghteko, by which he was believed to be possessed, a cannibal spirit who inhabits the human heart in the form of a lump of ice, which must be got rid of by immersion of the victim in boiling water, or by pouring boiling fat down his throat. This failing, they destroy the man-eater, rip him up to let out the evil spirit, cut off his head, and then pin his four quarters to the ground, all of which was done by his tribe in the case of Pahaño. Napesósus—"The Little Man"—struck the first blow, Mooótoos followed, and the poor lunatic was soon dispatched. Arrests were ultimately made, and a boatload of witnesses was about to leave for Athabasca Landing, *en route* to attend the trial at Edmonton, the first of its kind, I think, on record.

There can be no doubt that such slayings are effected to safeguard the tribe. Indians have no asylums, and, in order to get a dangerous lunatic out of the way, can only kill him. There would therefore be no hangings. But, now that the Indians and ourselves were coming under treaty obligations, it was necessary that an end should be put to such proceedings.

Yet the reader must not be too severe upon the Indian for his treatment of the Weeghteko. He attributes the disease to the evil spirit, acts accordingly, and slays the victim. But an old author, Mrs. Jameson, tells us that in her day in Upper Canada lunatics were allowed to stray into the forest to roam uncared for, and perish there, or were thrust into common jails. One at Niagara, she says, was chained up for four years.

Aside from such cases of madness, which have often resulted in the killing and eating of children, etc., and which arouse the most superstitious horror in the minds of all Indians, the "savages" of this region are the most inoffensive imaginable. They have always made a good living by hunting and trapping and fishing, and I believe when the time comes they will adapt themselves much more readily and intelligently to farming and stock-raising than did the Indians to the south. The region is well suited to both industries, and will undoubtedly attract white settlers in due time.

The fisheries in Lesser Slave Lake have always been counted the best in all Athabasca. The whitefish, to be sure, are diminishing towards the head of the lake, but it is possible that this is owing to some deficiency in their usual supply of food in that quarter. Just as birds and wild-fowl return, if not disturbed, to their accustomed breeding-places, so, it is said, the fishes, year by year, drop and impregnate their spawn upon the same gravelly shallows. The food of the whitefish in the lake is partly the worms bred from the eggs of a large fly resembling the May-fly of the East. This worm has probably decreased in the upper part of the lake, and therefore the fish go farther down for food. There they are exceedingly numerous, an evidence of which is the fact that the Roman Catholic Mission alone secured 17,000 fine whitefish the previous fall. Properly protected this lake will be a permanent source of supply to natives and incomers for many years to come.

Stock-raising was already becoming a feature of the region. Some three miles above the Heart River is Buffalo Lake, an enlargement of that stream, and around and above this, as also along the Wyawekamon, or "Passage between the Lakes," are immense hay meadows, capable of winter feeding thousands of cattle. The view of these vast meadows from the Hudson's Bay post, or from the Roman Catholic Mission close by, is magnificent.

These buildings are situated above Buffalo Lake, upon a lofty bank, with the Heart River in the foreground; and the great meadows, threaded by creeks and inlets, stretching for miles to the south of them, are one of the finest sights of the kind in the country.

In the far south was the line of forest, and to the eastward a flat-topped mountain, called by the Crees Waskahékum Kahassástakee—"The House Butte." Near this mountain is the Swan River, which joins the Lesser Slave Lake below the Narrows, and upon which, we were told, were rich and extensive prairies, and abundance of coal of a good quality. To the west were the prairies of the Salt River, well watered by creeks, with a large extent of good land now being settled on, and where wheat ripens perfectly.

There are other available areas of open country on Prairie River, which enters Buffalo Lake at its south-western end, and on which also there is coal, so that prairie land is not entirely lacking.

Though emphatically *now* a region of forest, there is reason to believe that vast areas at present under timber were once prairies, fed over by innumerable herds of buffalo, whose paths and wallows can still be traced in the woods. Indeed, very large trees are found growing right across those paths, and this fact, not to speak of the recollections, or traditions, of very old people, points to extensive prairies at one time rather than to an entirely wooded country.

Much of the forest soil is excellent, and the land has only to be cleared to furnish good farms. Indeed, it needs no

RESOURCES LESSER SLAVE LAKE REGION 79

stretch of imagination to foresee in future years a continuous line of them from Edmonton to the lake, along the three hundred miles of country intersected by the trail laid out by the Territorial Government.

As for the wheat problem, it is not at all likely that the Roman Catholic Mission would put up a flour-mill, as they were then doing, if it was not a wheat country. Bishop Clût assured me that potatoes in their garden reached three and a half pounds' weight in some instances, and turnips twenty-five pounds.

The kind people of both this and the Church of England Mission generously supplied our table with vegetables and salads, and we craved no better. Chives, lettuce, radishes, cress and onions were full flavoured, fresh and delicious, and quite as early as in Manitoba. Being a timber country, lumber was, of course, plentiful, there being two sawmills at work cutting lumber, which sold, undressed, at \$25 to \$30 a thousand.

The whole country has a fresh and attractive look, and one could not desire a finer location than can be had almost anywhere along its streams and within its delightful and healthy borders. And yet this region is but a portal to the vaster one beyond, to the Unjigah, the mighty Peace River, to be described hereafter.

The make-weight against settlement may be almost summed up in the words transport and markets. The country is there, and far beyond it, too; but so long as there is abundance of prairie land to the south, and no railway facilities, it would be unwise for any large body of settlers, especially with limited means, to venture so far. The small local demand for beef and grain might soon be overtaken, and though stock can be driven, yet three hundred miles of forest trail is a long way to drive. Still, pioneers take little thought of such conditions, and already they were dropping in in twos and threes as they used to do in the old days in Red River Settlement, lured by the wilderness perhaps to priva-

tion, but entering a country much of which is suited by nature for the support of man.

The best reflection is that there is a really good country to fall back upon when the prairies to the south are taken up. Swamps and muskegs abound, but good land also abounds, and the time will come when the ring of the Canadian axe will be heard throughout these forests, and when multitudes of comfortable homes will be hewn out of what are the almost inaccessible wildernesses of to-day.

By the end of the first week in July the issue of scrip certificates began to fall off, though the declarations were still numerous. But land was in sight; that is to say, our release and departure for Peace River, which we were all very anxious, in fact burning, to see.

By this time there was, of course, much money afloat amongst the people, which was rapidly finding its way into the traders' pockets. There was a "blind pig," too, doing business in the locality, though we could not discover where, as everybody professed entire ignorance of anything of the kind. The fragrant breath and hilarity of so many, however, betrayed its existence, and, as a crowning evidence, before sunrise on the 6th, we were all awakened by an uproarious row amongst a tipsy crowd on the common.

The disturbance, of course, awakened the dogs, if, indeed, those wonderful creatures ever slept, and soon a prolonged howl, issuing from a thousand throats, made the racket complete. It seemed to our listening ears, for we stuck to our beds, to be a promiscuous fight, larded with imprecations in broken English, the phrase "goddam" being repeated in the most comical way. We expected to see a lot of badly bruised men in the morning, but nothing of the kind! Nobody was hurt. It proved to be a very bloodless affair, like the scrimmages of the dogs themselves, full of sound and fury signifying nothing.

CHAPTER VI.

ON THE TRAIL TO PEACE RIVER.

By the afternoon of the 12th we had finished our work at the lake, and in the evening left the scene of so much amusement, and its lively and intelligent people, not without regret. Having said good-bye to Bishop Clût and his clergy, and to the Hudson's Bay Company's people, and others, we passed on to Salt Creek, which we crossed at dusk, and then to the South Heart River—Otaïe Sepe—where we camped for the night. This affluent of the lake has a broad but sluggish current, its grassy banks sloping gently to the water's edge, like some Ontario river—theⁿ beau ideal of a pike stream. The Church of England Mission was established here in charge of the Reverend Mr. Holmes, who had shown us every kindness during our long stay. As boats can ascend in high water to this point, the Hudson's Bay Company had a couple of large warehouses close by, standing alone, and filled with all kinds of goods. The trail led for many miles up a long, easy ascent, through a timber country, to an upper plateau, with, after passing the Heart River, occasional small patches of prairie on the wayside. The plateau itself is the anticlinal down which the North Heart flows to Peace River, which it joins at the crossing.

The trail so far had been good, but after crossing Slippery Creek it proved to be almost a continuous mud-hole, due to its extreme narrowness and the wet weather, closely bordered, as much of it was, by dense forests. It revealed a good farming country, however, free from stones, and the soil a rich, loamy clay throughout. It was well timbered, in some places, with the finest white poplar I had yet seen.

The grass was luxuriant, and the region teemed with tiger-lilies, yarrow, and the wild rose.

The Little Prairie, as it is called, is really a lovely region, in appearance resembling the Saskatchewan country. There was an old Hudson's Bay cattle station here, at that time deserted, and here, too, we were charmed with a mirage of indescribable beauty, an enchanting portal to the mighty Peace, which we reached about mid-day on the 15th of July.

The view up the Peace River from the high prairie level is singularly beautiful, the river disclosing a series of reaches, like inland lakes, far to the west, whilst from the south comes the immense valley of the Heart, and, farther up, the Smoky River, a great tributary which drains a large extent of prairie country mixed with timber.

To the north spreads upward, and backward to its summit, the vast bank of the river, varied as to surface by rounded bare hills and valleys and flats sprinkled with aspens, cherries, and saskatoons, the latter loaded with ripe fruit.

The banks of the Peace River are a country in themselves, in which, particularly on the north side, numerous homesteads might be, and indeed have been, carved out. Descending to the river, we found a Hudson's Bay Company and Police post. The river here is about a third of a mile wide, and was in freshet, with a current, we thought, of about six miles an hour.

At Smoky River we met a couple of prospectors, Mr. Tryon, a nephew of the ill-fated Admiral, and Mr. Cooper Blachford, down from the Poker Flat mining-camp, this side the Finlay Rapids, in the Selwyn Mountains. They reached that camp by way of Ashcroft, B.C., in twenty-two days, the Peace River route being very much longer and more difficult. They described the camp there as a promising one, with much gold-bearing quartz in sight, but the cost of provisions and the extreme difficulty of development under the circumstances held it back.

There being but a few half-breeds here, we crossed the



The north bank at Peace River Crossing



Commission and half-breeds at Fort Dunvegan, Upper Peace River



Our camp at Peace River Crossing



river, and decided to go on to Fort Dunvegan, and on our return complete our scrip issue at the Landing; so, partly on horseback and partly by waggon, we made our way to our first camp. The trail lay along and up and down the immense bank of the river, debouching at one place at the site of old Fort McLeod, and passing the fine St. Germain farm, with as beautiful fields of yellowing wheat as one would wish to see.

Here we got an abundant supply of vegetables, and in this ride our first taste of the Peace River mosquito—or, rather, that animal got its first taste of us. It is needless to dwell upon this pest. Like the fleas in Italy, it has been overdone in description, and yet beggars it.

All along the trail were old buffalo paths and wallows. Indeed, we saw them everywhere we went on land, showing how numerous those animals were in times past. In 1793 Sir Alexander Mackenzie describes them as grazing in great numbers along these very banks, the calves frisking about their dams, and moose and red deer were equally numerous. In 1828 Sir George Simpson made a canoe journey to the Coast by way of this river, and they were still very numerous. The existing tradition is that, some sixty years ago, a winter occurred of unexampled severity and depth of snow, in which nearly all the herds perished, and never recovered their footing on the upper river. The wood buffalo still exists on Great Slave River, but, where we were, the only memorials of the animal were its paths and wallows, and its bones half-buried in the fertile earth.

On the morning of the 17th we topped the crest of the bank, and found ourselves at once in a magnificent prairie country, which swept northward, varied by beautiful belts of timber, as far as Bear Lake, to which we made a detour, then westerly to Old Wives Lake—Nootoôquay Sakaigon—and on to our night camp at Burnt River, twenty-two miles from Dunvegan. The great prairie is as flat as a table, and is the exact counterpart of Portage Plains, in Manitoba, or

a number of them, with the addition of belts and beautiful islands of timber, the soil being a loamy clay, unmistakably fertile. Nothing could excel the beauty of this region, not even the fairest portions of Manitoba or Saskatchewan.

On the 18th we finished our drive over a like beautiful prairie, slightly rolling, dotted with similar clumps of timber like a great park, and carpeted with ripe strawberries and flowers, including the wild mignonette, the lupin, and the phlox.

Descending a very long and crooked ravine, we reached the river flat at last, upon which is situated Fort Dunvegan, called after the stronghold of the McLeods of Skye, but alas! with no McCrimmon to welcome us with his echoing pipes! Chief-factor McDonald, in his scanty journal of Sir George Simpson's canoe voyage in 1828 from Hudson's Bay to the Pacific, does not give the date at which this post was established, but mentions its abandonment in 1823, owing to the murder of a Mr. Hughes and four men at Fort St. John by the Beaver Indians. It had been re-established by Chief-trader Campbell. Simpson, Mr. McDonald, and Mr. McGillivray, who had embarked at Fort Chipewyan, where Sir George himself had served his clerkship, spent a day at Dunvegan in August, resting and getting fresh supplies. The warring traders had united in 1821, and this voyage was undertaken in order to harmonize the Indians, who, from the bay to the coast, particularly across the mountains, had become fierce partisans of one or other of the great companies.

Sir George had his McCrimmon with him in the shape of his piper, Colin Fraser, who played and paraded before the Indians most impressively in full Highland costume. Deer and buffalo were numerous in the region, and, during the day, thirteen sacks of pemmican were made for the party from materials stored at the fort. Simpson was famous in those days for his swift journeys with his celebrated Iroquois canoemen. They were made by *Canot du Maitre*, as it was

called, the largest bark canoe made by the Indians, carrying about six tons and a crew of sixteen paddlers, and which ascended as far as Fort William. Thence further progress was made in the much smaller "North Canoes" to all points west of Lake Superior. This particular journey of nearly 3,200 miles, made almost entirely by canoe, was completed from York Factory to Fort Langley, near the mouth of Fraser River, in sixty-five days of actual paddling, an average of about fifty miles a day, nearly all up stream.

Only two buildings of the old fort remained at the time of our visit, both in a ruinous condition. The old fireplaces and the roofs of spruce bark, a covering much used in the country, were still sound, and several cellars indicated where the other buildings had stood. The later post is about a gunshot to the east of them, and the whole site had certainly been well chosen, being completely sheltered by the immensely high banks of the great and deep river, whose bends "shouldered" and seemed to shut in the place east and west, also by the "Caps," two very high hills forming the bank on each side of the river, so called from their fancied resemblance to a skull-cap. The river here is over four hundred yards in width, and its banks, from the water's edge to the upper prairie level, are some six hundred feet or more in height; but, as the trail leads, the ascent of the great slope is about a mile in length.

A number of townships had been blocked here, at one time, by Mr. Ogilvie, D.L.S., but not subdivided, Fort Dunvegan being situated, if I mistake not, in the south-west corner of Township 80, Range 4, west of the Sixth Meridian.

The Roman Catholic Mission east of the fort was found to be beautifully sheltered, and neighboured by fine fields of wheat and a garden full of green peas and new potatoes. But this was on the flat. There was no farming whatever on the north side, on the upper and beautiful prairies described. A Mr. Milton had tried, it was said, about ten miles east of Dunvegan, but did not make a success of it.

Near the fort a raft was moored, on which had descended a party of four Americans. They were from the State of Wyoming, and had made their way the previous summer, by way of St. John and the Pine River, to the Nelson, a tributary of the Liard. They had had poor luck, in fact no luck at all; and this was the story of every returning party we met which had been prospecting on the various tributaries of the Peace and Liard towards the mountains: The cost of supplies, the varying and uncertain yield, but, above all, the brief season in which it is possible to work—barely six weeks—had dissipated by sad experience the bright dreams of wealth which had lured them from comfortable homes. Between seven and eight hundred people had gone up to those regions *via* Edmonton, bound for the Yukon, many of whom, after a tale of suffering which might have filled its boomsters' souls with remorse, had found solitary graves, and the remainder were slowly toiling out of the country, having sunk what means they possessed in the vain pursuit of gold. They brought a rumour with them that some whites who had robbed the Indians on the Upper Liard had been murdered. It was not known what white men had penetrated to that desolate region, and the rumour was discredited; at all events, it was never verified.

The treaty had been effected at Dunvegan, on the 6th, with a few Beaver Indians, who still lingered by their tepees, pitched to the west on the opposite shore. The half-breeds had camped near the fort pending our arrival, and we found them a very intelligent people, indeed, with some interesting relics of the old régime still amongst them. One, in particular, had canoed from Lachine with Simpson sixty years before. He was still lively and active, and a patriarch of the half-breed community. Large families we found to be the rule here, some parents boasting of twelve or thirteen children *under* age. This, and their healthy looks, spoke well for the climate, and their condition otherwise was promising. being comfortably clad, all speaking more or less English or French, whilst many could read and write.

Our work being completed here, we set out for the Crossing by waggon, our route lying over the same majestic prairies, and reached the Landing the second night, passing the Roman Catholic and Church of England Missions on the way. The former Mission is an extensive establishment, with a fine farm and garden. Indeed, with the exception of primitive outlying stations, all the principal Roman Catholic Missions, by their extent and completeness, put our own more meagrely endowed establishments into rather painful contrast.

A great concourse of natives was at the Landing awaiting our arrival. The place was covered with tepees and tents, and no less than four trading marquees had been pitched pending the scrip issue, which it took some time to complete.

Near the Landing were the mill and farm of a namesake of Sir Alexander Mackenzie. His father, indeed, was a cousin of the renowned explorer who gave his name to the great river of the North. This father, under whom, Mr. Mackenzie said, Lord Strathcona had spent his first year as a clerk in the Hudson's Bay Company's service, was drowned, with nine Iroquois, whilst running the Lachine Rapids in a bark canoe. His son came to Peace River in 1863, and his career, as he told it to me, will bear repeating. He was born at Three Rivers, in Lower Canada, in 1843, and was sent to Scotland to be educated, remaining there until he was eighteen years of age. In 1861 he joined the Hudson's Bay Company's service, wintering first at Norway House under Chief-factor William Sinclair, but removed to Peace River, became a chief-trader there in 1872, and, after some years of service, retired, and has lived at the Crossing ever since.

The Landing, he told me, used to be known as "The Forks," it being here that the Smoky River joins the Peace; and here were concentrated, in bygone days, the posts and rivalries of the great fur companies. The remains of the North-West Company's fort are still visible on the north bank, a few miles above the Landing. On the south shore,

in the angle of the two rivers, stood the Hudson's Bay Company's fort, whilst the old X. Y. Company's post, at that time the best equipped on the river, stood on the north bank opposite the Smoky.

In a delightful afternoon spent in rambling over this interesting neighbourhood, Mr. Mackenzie made out for me the site of the latter establishment, now in the midst of a dense thicket of nettles, shrubs, and saplings. In this locality the antagonisms of old had full play—not only those of the traders, but of the Indians—and the river exhibited much more life and movement then than at the time of our visit.

In remote days a constant warfare had been kept up by the Crees on the river, who, just as they invaded the Blackfeet on the Saskatchewan, encroached here upon the Beavers—at that time a brave, numerous and warlike tribe, but now decayed almost to extinction, the victims, it is said, of incestuous intercourse. The Beavers had also an enemy in their congeners, the Chipewyans, the three nations seemingly dividing the great river between them. But neither succeeded in giving a permanent name to it. The *Urjigah*, its majestic and proper name, or the *Tsa-hoo-dene-desay*—"The Beaver Indian River"—or the *Amiskoo eënnu Sepe* of the Crees, which has the same meaning, has not taken root in our maps. The traditional peace made between its warring tribes gave it its name, the *Riviere la Paix* of the French, which we have adopted, and by this name the river will doubtless be known when the Indians, whose home it has been for ages, have disappeared.

On the 24th our work here was completed, and we took to our boats, which were to float us down to Vermilion and Athabasca Lake. During our stay, however, I had noted all the information that could be gained respecting the Upper Peace as an agricultural region, some of which I have already given. The knowledge obtainable about the fertile areas of the hinterlands of a vast unsurveyed country like this, though not very ample, was no doubt trustworthy as far as it went.

Trappers and traders are confined to the water, as a rule, and see little land away from the shores of streams and lakes. The only people who, through their employments, knew the interior well were the Indians and half-breed hunters. It was the statements of these, therefore, and of the few prosperous farmers and stockmen scattered here and there, which afforded us our only reliable knowledge.

The most extensive prairies adjacent to the Upper Peace River are those to the north already described. The nearest on the south side are the prairies of Spirit River, a small stream which divides several townships of first-class black, loamy soil, well wooded in parts, but with considerable prairie. The nearest farmer and rancher to Dunvegan, Mr. C. Brymner, who had lived for ten years on Spirit River, told me that during seven of these, though frost had touched his grain, particularly in June, it had done little serious harm. It was a fine hay country, he said, even the ridge hay being good, and therefore a good region for cattle, he himself having at the time over a hundred head, which fed out late in the fall and very early in the spring, owing to the Chinook winds, which enter the region and temper its climate. Southeast of Fort St. John there is a considerable area known as Pooscapee's Prairie, getting its name from an old Indian chief, and which was well spoken of, but which we did not see.

A much more extensive open country, however, is the Grand Prairie, to the south-west of the Crossing, which connects with the Spirit River country, and is drained by the Smoky River and its branches, and by its tributary, the Wapiti. There is no dispute as to whether this should or should not be called a prairie country. As a matter of fact, it is an extensive district suitable for immediate cultivation, and containing, as well, valuable timber for lumber, fencing and building.

The first inquiry the intending immigrant makes is about frost. At the Dunvegan and St. Augustine Mission farms,

on the river bank above the Landing, Father Busson told me that White Russian and Red Fyfe wheat had been raised since 1881, and during all these years it had never been seriously injured, whilst the yield had reached as high as thirty-five bushels to the acre. Seeding began about the middle of April, and harvesting about the middle of August. He was of opinion that along the rim of the upper prairie level wheat would ripen, but farther back he thought it unsafe, and so no doubt it is for the present. Mr. Brick's fine farm, opposite the Six Islands, and other farms also, were a success, but, of course, all these were along the river. With regard to the upper level, I heard opinions adverse to Father Busson's, though, like his, conjectural. The inconsiderable height above the sea (Lefroy, I think, puts the upper level at about 1,600 feet), the prolonged sunlight, the whole night being penetrated with it though the sun has set, together with good methods of farming, will no doubt get rid of frost, which strikes here just as it has in every new settlement in Manitoba, and in fact throughout a great portion of the continent.

There were complaints, however, of a worse enemy than frost, namely, drought, which we were told was a characteristic feature of those magnificent prairies to the north. The wiry grass is very short there, something like the Milk River grass in Southern Alberta, and hay is scarce. This drawback will doubtless be got over hereafter by dry farming, or better still by irrigation, should the lakes to the north prove to be available.

I have pointed out disadvantages which in all likelihood will disappear with time and settlement by good farmers. It is a region, I believe, predestined to agriculture; but, in some localities, the rainfall, as has been said, is rather scant for good husbandry, and, therefore, farming to the north of the river, on the upper level, is not as yet an assured success. To the south better conditions prevail, and thither no doubt the stream of immigration will first trend.

Altogether we estimated the prairie areas of the upper river at about half a million acres, with much country, in addition, which resembles the Dauphin District in Manitoba, covered with willows and the like, which, if they can be pulled out by horse-power, as is done there, will not be very expensive to clear. There is, of course, any quantity of timber for building and fencing, though much has been destroyed by fire, the varieties being those common to the whole country.

— To the south, in the Yellowhead, and on the Upper Athabasca and its tributaries, there is considerable prairie also, more easily reached than Peace River; but this is apart from my subject. I may say, in conclusion, that the Upper Peace River country is a very fine one, drained by a vast and navigable river, compared with which the Saskatchewan must yield the palm, and, beyond doubt, this will be the first region to attract settlement and railway development.

Aside from settlers and a railway, the chief needs of the country are a good waggon-road to Edmonton and mail facilities, which were almost non-existent when we were there, but which have recently been to some extent supplied. Nearly three months had elapsed since we entered the country, and not a letter or paper had reached us from the outer world at any point. The imports into the country were increasing very fast, and, through competition and fashion, its principal furs were immensely more valuable than in the past.

As for the natives of the region, we found them a very worthy people, whose progress in the forms of civilized life, and to a certain extent in its elegances, was a constant surprise to us. As for the country, it was plain that all we met were making a good living in it, not by fur alone, but by successful farming, and that its settlement was but a question of time.

CHAPTER VII.

DOWN THE PEACE RIVER.

WE had now to descend the river, and our first night in the boats was a bad one. A small but exceedingly diligent variety of mosquito attacked us unprepared; but no ordinary net could have kept them out, anyway. It was a case of heroic endurance, for Beelzebub reigned. The immediate bank of the river was now somewhat low in places, and along it ran a continuous wall, or layer, of sandstone of a uniform height. The stream was vast, with many islands in its course, and whole forests of burnt timber were passed before we reached Battle River, 170 miles down, and which, on the 25th, we left behind us towards evening. Next morning we reached Wolverine Point, a dismal hamlet of six or seven cabins, with a graveyard in their midst. The majority of the half-breeds of the locality had collected here, the others being out hunting. This is a good farming country. Eighteen miles north-west of Paddle River there is a prairie, we were told, of rich black soil, twenty-five miles long and from one to five miles wide, and another south-west of Wolverine, about nine miles in diameter and thirty-six in circumference—clean prairie and good soil, and covered with luxuriant grass and pea-vine. The latter, I think, is watered by a stream called “The Keg,” or “Keg of Rum.” Wolverine is also a region of heavy spruce timber, and fish are abundant in the various streams which join the Peace River, though not in the Peace itself.

We were now approaching Vermilion, the banks of the river constantly decreasing in height as we descended, until they became quite low. Beneath a waning moon in the south,

and an exquisite array of gold and scarlet clouds in the east, which dyed the whole river a delicate red, we floated down to the hamlet of Vermilion. The place proved to be a rather extensive settlement, with yellow wheat-fields and much cattle, for it is a fine hay country. The pioneer Canadians at Vermilion were the Lawrence family, which had been settled there for over twenty years. They were originally residents of Shefford County, Eastern Townships, and set out from Montreal for Peace River in April, 1879, making the journey to Vermilion, by way of Fort Carlton, Isle a la Crosse and Fort McMurray, in four months and some ten days. The elder Mr. Lawrence had been engaged under Bishop Bompas to conduct a mission school at Chipewyan, but after a time removed to Vermilion, where he organized another school, which he conducted until 1891. He then resigned, and began farming on his own account, and, by and by, with great pains and expense, brought in a flour mill, whose operation stimulated settlement, and speedily reduced the price of flour from \$25 to \$8 a sack. Unfortunately, this useful mill was burnt in April preceding our visit. The yield of grain, moreover, most of it wheat, was estimated at 10,000 bushels, and the burning of the mill was therefore not only a great loss to Mr. Lawrence, but a severe blow to the place. The population interested in farming was estimated at about three hundred souls, thus forming the nucleus of a very promising settlement, now, of course, at its wits' end for gristing. Vermilion seemed to be a very favourable supply point in starting other settlements, being in touch by water with Loon River, Hay River, and other points east and north, where there is abundance of excellent land. For the present, and pending railway development, it was plain that the great and pressing requirement of the region was a good waggon-road by way of Wahpooskow to Athabasca Landing, a distance of three hundred miles, thus avoiding the dangerous rapids of the Athabasca, or the long detour by way of Lesser Slave Lake, and making communication easy in winter time.

From Mr. Erastus Lawrence, the head of the family, we got definite information regarding the region and its prospects for agriculture. We spent Sunday at his comfortable home, and examined his farm carefully. In front of the house was a field of wheat, 110 acres in extent, as fine a field as we had ever seen anywhere, and of this they had not had a failure, he said, during all their farming experience, the return never falling below fourteen bushels to the acre, in the worst of years, twenty-five being about the average yield. They sowed late in April, but reaped generally about the 15th of August. They had never, he said, been seriously injured by frost since 1884, and in fact no frost had occurred to injure wheat since 1887. There was abundance of hay, and 10,000 head of stock, he believed, could be raised at that very point. Many hogs were raised, with great profit, bacon and pork being, of course, high-priced. One of the sons, Mr. E. H. Lawrence, said he had raised sixteen pigs, which at eighteen months dressed 370 pounds apiece. At that time there were about 500 head of cattle, 250 horses, and 200 pigs in the settlement.

After service at the Reverend Mr. Scott's neat little church, we returned to Mr. Lawrence's, and enjoyed an excellent dinner, including home-cured ham, fresh eggs, butter and cream. That was a notable Sunday for us in the wilds, and seldom to be repeated.

Strange to say, we found the true locust here, our old Red River pest, which had quartered itself on the settlement more than once. I examined numbers of them, and found the scarlet egg of the ichneumon fly under many of the shards. No one seemed to know exactly how they came, whether in flight or otherwise; but there they were, devouring some barley, but living mainly upon grass, which they seemed to prefer to grain. They had appeared nine years before our coming, and disappeared, and then, three years before, had come again.

We found quarters in a large building at the fort, which was in charge of Mr. Wilson, whose wife was a daughter of



The Lawrence wheatfield at Fort Vermilion



The beldam of a Cree camp




Ladies of Chipewyan



A primitive R. C. Mission in Athabasca

my old friend, Chief-factor Clarke, of Prince Albert, her brother having charge of the trading store. The post is a substantial one, and the store large, well stocked, and evidently the headquarters of an extensive trade. At such posts, which have generally a fringe of settlement, the Company's officers and their families, though, of course, cut off from the outer world, lead, if somewhat monotonous, by no means irksome lives. Books, music, cards and dances serve to while away spare time, and an occasional wedding, lasting, as it generally does, for several days, stirs the little community to its core. But sport, in a region abounding with game of all kinds, is the great time-killer, giving the longed-for excitement, and contributing as well to the daily bill of fare the very choicest of human food. Such a life is indeed to be envied rather than commiserated, and we met with few, if any, who cared to leave it. But such posts are the "plums" of the service, and are few and far between. At many of the solitary outposts life has a very different colour.*

*"At an outpost," says Mr. Bleasdel Cameron, "where a clerk is alone with his Indian servant, the life is wearisome to a degree, and privation not infrequently adds to the hardship of it. Supplies may run short, and in any case he is expected to stock himself with fish, taken in nets from the lake, near which his post is situated, for his table and his dogs, as well as to augment his larder by the expert and diligent use of his gun. Rare instances have occurred where, through accident, supplies had not reached the far-out posts for which they were intended, and the men had literally died of starvation. Out of a York boat's crew, which was taking up the annual supplies for a post far up among the Rocky Mountains, on a branch of the Mackenzie River, two or three men were drowned, and the ice beginning to take, the boat was obliged to put back to the district headquarters. The three men at the outpost were left for some weeks without the supplies, and when, after winter had set in, and it became possible to reach them with dog trains, and provisions were at length sent them, two were found dead in the post, while the third man was living by himself in a small hut some distance from the fort buildings. The explanation he gave was that he had removed to where there was a chance of keeping himself alive by snaring rabbits, which were more plentiful than at the post. But a suggestion of cannibalism surrounded the affair, for only the bones of his companions were found, and they were in the open chimney-place. Nothing was done, however, and I myself saw the survivor many times in after years."



At dinner Mr. Wilson told us of a very curious circumstance the previous fall, at the Loon River, some eighty miles south of Vermilion—something, indeed, that very much resembled volcanic action. Indians hunting there were surprised by a great shower of ashes all over the country, thick enough to track moose by, whilst others in canoes were bewildered in dense clouds of smoke. Dr. Wade, a traveller who had just come in from Loon River, said he had discovered three orifices, or “wells,” as he called them, out of which he thought the ashes might have been ejected. As there were no forest fires to account for the phenomena, they were rather puzzling.

We had begun taking depositions almost as soon as we arrived, and had a very busy time, working late and early in order to get away by the first of August. There were some interesting people here, “Old Lizotte” and his wife in particular. He was another of the “Ancient Mariners” who had left Lachine fifty-five years before with Governor Simpson—a man still of unshaken nerve and muscles as hard as iron. One by one these old voyageurs are passing away, and with them and their immediate successors the tradition perishes.

There was another character on the Vermilion stage, namely, old King Beaulieu. His father was a half-breed who had been brought up amongst the Dog Ribs and Copper Indians, and some eighty years back had served as an interpreter at Fort Chipewyan. It was he who at Fort Wedderburne sketched for Franklin with charcoal on the floor the route to the Coppermine River, the sketch being completed to and along the coast by Black Meat, an old Chipewyan Indian. King Beaulieu himself was Warburton Pike’s right-hand man in his trip to the Barren Lands. He had his own story, of course, about the sportsman, which we utterly discredited. He had joined the Indian Treaty here, but repented, almost flinging his payment in our face, and demanding scrip instead. One of his sons asked me if

the law against killing buffalo had not come to an end. I said, "No! the law is stricter than ever—very dangerous now to kill buffalo." Asking him what he thought the band numbered, he said, "About six hundred," and added, "What are we poor half-breeds to do if we cannot shoot them?" Pointing out the abundance of moose in the country, and that if they shot the buffalo they would soon be exterminated, he still grumbled, and repeated, "What are we poor half-breeds to do?" I have no doubt whatever that they do shoot them, since the band is reported to have diminished to about 250 head. Immediate steps should certainly be taken to punish and prevent poaching, or this band, the only really wild one on the continent, will soon be extinct.

We were now on our boats again, and heading for the Chutes, as they are called, the one obstruction to the navigation of Peace River for over six hundred miles. We debarked at the head of the rapids above the Grand Fall, and walked to their foot along a shelving and slippery portage, skirting the very edge of the torrent. The Crees call this *Meatina Powistik*—"The Real Rapid"—the cataract farther on being the *Nepegabaketik*—"Where the Water Falls."

Returning to the "Decharge," I ran the rapids with Cyr and Baptiste in one of the boats, a glorious sensation, reminding one, though shorter, of the Grand Rapids of the Saskatchewan, the waves being great, and the danger spiced by the tremendous vortex ahead. The rapids are about four hundred yards in length, and extend quite across the river, which is here of an immense width. A heavy but brief rainstorm had set in, and it was some time before we could reload and drop down to the head of the "Chaudiere," if I may call it so, for the vortex much resembles the "Big Kettle" at Ottawa. That night we spent in the York boat, its keel on the rocks and painter tied to a tree, and, lulled by the roar of the cataract, slept soundly until morning.

These falls cut somewhat diagonally across the river, the vortex being at the right bank, and close in-shore, centred

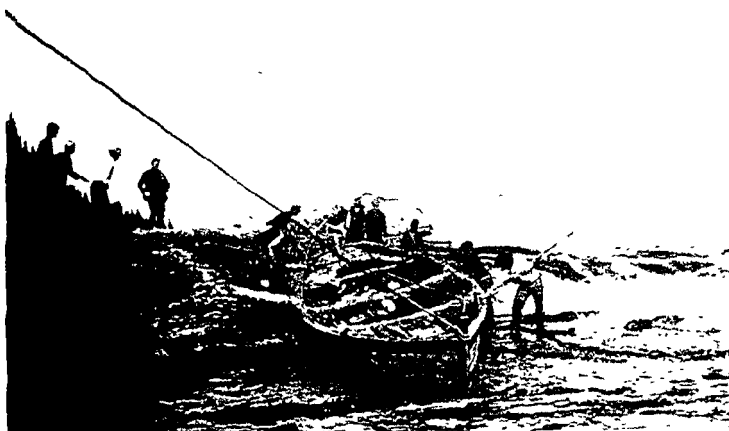
by a limestone shelf extending to the bank, flanked on the left, and at an acute angle, by a deeply-indented reef of rock. Looking up the river, the view to the west seems inclosed by a long line of trees, which, in the distance, appear to stand in the water. Thence the vast stream sweeps boldly into the south, and with a rush discharges down the rapids, and straight over the line of precipice, in a vast tumultuous greyish-drab torrent which speedily emerges into comparatively still water below. The rock here is an exceedingly hard, mottled limestone, resembling the stone at St. Andrew's Rapids on Red River. Where exposed it is pitted or bitten into by the endless action of wind and water, and lies in thick layers, forming an irregular dyke all along the shore, over the surface of which passes the portage, some forty yards in length. Though short, it is a nasty one, running along a shelf of rock into which great gaps have been gored by the torrent. Large quantities of driftwood were stuck in the rapids above, and a big pile of it had lodged at the south angle of the cataract, over which our boats had to be drawn, and dropped down, with great care and difficulty. A rounded, tall island lies, or rather stands, below the falls, towards the north shore, whose sheer escarpments and densely wooded top are very curious and striking. Two sister islands and another above the falls, all four being about a mile apart, stand in line with each other, as if they had once formed parts of an ancient marge, and, below the falls, the torrent has wrought out a sort of bay from the rock, the bank, which is high here, giving that night upon its grassy slope, overhung with dense pine woods, a picturesque camp to our boatmen. The vast river, the rapids and the falls form a majestic picture, not only of material grandeur, but of power to be utilized some day in the service of man. Though formidable, they will yet be surmounted by modern locks; and should Smith's Rapids, on the Great Slave River, be overcome by canalling, there would then be developed one of the longest lines of inland navigation on the continent.



Peace River Rapids



Running the first chute on Peace River



Portaging our boats over the Great Chute of Peace River



The Red River, which joins the Peace about twenty-five miles below the Chutes, flows from the south with a course, it was said, of about two hundred miles, and up this beautiful stream there are extensive prairies. The soil is very rich at the confluence, and we noticed that in the garden at the little Hudson's Bay Company's post, where we transacted our business, vegetables and potatoes were further advanced than at Vermilion, and some ears of wheat were almost ripe. From statements made we judged this to be a region well worth special investigation; it was, in fact, one of the most inviting points for settlement we had seen on our journey.

Following down the Peace, some shoaly places were met with in the afternoon, the banks being low, sandy and uniform, with open woods to the south. The current was stately, but so slow that oars had often to be used. A chilly sunset was followed by an exceedingly brilliant display of Northern Lights, called by the Crees *Pahkugh ka Neématchik*—"The Dance of the Spirits." This generally presages change; but the day was fine, and next morning we passed what are called the Lower Rapids, below which the banks are lined by precipitous walls of limestone, the river narrowing to less than half of its previous width.

Landing at Peace Point, the traditional scene of the peace between the Beavers and the Chipewyans, or between the Beavers and the Crees, as Mackenzie says, or all three, we found it to be a wide and beautiful table-like prairie, begirt with aspens, on which we flushed a pack of prairie chickens. Below it, and looking upward beyond an island, a line of timber, fringed along the water's edge with willows, sweeps across the view, met half-way by a wall of Devonian rock, whose alternate glitter and shade, in the strong sunshine streaming from the east, seemed almost spectral.

The heavily timbered island added to the effect, and, with a patch of limestone on its cheek, formed a strikingly beautiful foreground.

The only exciting incident of the day was the vigorous

chase, by some of the party, of an old pair of moulting gray geese with their young, all, of course, unable to fly. It was pitiful to watch the clever and fearless actions of the old birds as decoys, falling victims, at last, to parental love. Indeed, they were not worth eating, and to kill them was a sin. But when were there ever scruples over food on Peace River, that theatre of mighty feats of gormandism?

I have already hinted at those masterpieces of voracity for which the region is renowned; yet the undoubted facts related around our camp-fires, and otherwise, a few of which follow, almost beggar belief. Mr. Young, of our party, an old Hudson's Bay officer, knew of sixteen trackers who, in a few days, consumed eight bears, two moose, two bags of pemmican, two sacks of flour, and three sacks of potatoes. Bishop Grouard vouched for four men eating a reindeer at a sitting. Our friend, Mr. d'Eschambault, once gave Oskinénu—"The Young Man"—six pounds of pemmican, who ate it all at a meal, washing it down with a gallon of tea, and then complained that he had not had enough. Sir George Simpson states that at Athabasca Lake, in 1820, he was one of a party of twelve who ate twenty-two geese and three ducks at a single meal. But, as he says, they had been three whole days without food. The Saskatchewan folk, however, known of old as the Gens de Blaireaux—"The People of the Badger Holes"—were not behind their congeners. That man of weight and might, our old friend, Chief-factor Belanger—drowned, alas, many years ago with young Simpson at Sea Falls—once served out to thirteen men a sack of pemmican weighing ninety pounds. It was enough for three days; but, there and then, they sat down and consumed it all at a single meal, not, it must be added, without some subsequent and just pangs of indigestion. Mr. B. having occasion to pass the place of eating, and finding the sack of pemmican, as he supposed, in his path, gave it a kick; but, to his amazement, it bounded aloft several yards, and then lit. It was empty! When it is remembered that, in the old buffalo days, the daily

ration per head at the Company's prairie posts was eight pounds of fresh meat, which was all eaten, its equivalent being two pounds of pemmican, the enormity of this Gargantuan feast may be imagined. But we ourselves were not bad hands at the trencher. In fact, we were always hungry. So I do not reproduce the foregoing facts as a reproach, but rather as a meagre tribute to the prowess of the great of old—the men of unbounded stomach!

On the afternoon of the 4th we rounded Point Providence, the soil exposures sandy, the timber dense but slender, and early next morning reached the Quatre Fourches, which was at that time flowing into Lake Athabasca. It is simply a waterway of some thirty miles in length, which connects Peace River with the lake, and resembles, in size and colour, Red River in Manitoba. It is one of "the rivers that turn"—so called from their reversing their current at different stages of water. A small stream of this kind connects the South Saskatchewan with the Qu'Appelle, and another, a navigable river, the Lower Saskatchewan with Cumberland Lake. The Quatre Fourches is thus both an inlet and an outlet, but not of the lake in a right sense. The real outlet is the Rocher River, which joins the Peace River at the intersection of latitude 59 with the 111.30th degree of longitude, beyond which the united streams are called the Great Slave River.

The Quatre Fourches—"The Four Forks"—gets its name from the junction of a channel which connects a small lake called the Mamawee with the south-west angle of Lake Athabasca, Fort Chipewyan being situated on an opposite shore upon an arm of the lake, here about six miles wide. The stream is sluggish, and is thickly wooded to the water's edge, with here and there an exposure of red granite. It is a very beautiful stream, and it was a pleasure to get out of the great river and its oppressive vastness into the familiar-looking, homely water, its eastern rocks and exquisite curves and bends. Rounding a point, we came upon a camp of

Chipewyans drying fish and making birch-bark canoes, all of them fat, dirty, like ourselves, and happy; and, passing on, at dusk we reached the outlet and the lake.

It was blowing hard, but we decided to cross to the fort, where a light had been run up for our guidance, and which, by vigorous rowing, we reached by midnight. Here Mr. Laird was waiting to receive us, the other Commissioners having departed for Fort McMurray and Wahpoóskow.

Next morning we saw the lake to better advantage. It is called by the Chipewyans Kaytaylaytooway, namely, "The Lake of the Marsh," corresponding to the Athapuskow of the Crees, corrupted into the Rabasca of the French voyageurs, and meaning "The Lake of the Reeds." At one time, it may be mentioned, it was also known as "The Lake of the Hills," and its great tributary, the Athabasca, was the Elk River; but these names have not survived.

CHAPTER VIII.

FORT CHIPEWYAN TO FORT M'MURRAY.

CHYPEWYAN, it may be remarked, is not a Déné word. It is the name which was given by the Crees to that branch of the race when they first came in contact with them, owing to their wearing a peculiar coat, or tunic, which was pointed both before and behind; now disused by them, but still worn by the Esquimaux, and, until recent years, by the Yukon Indians. Though somewhat similar in sound, it has no connection, it is asserted, with the word Chippeway, or Ojibway. For all that, the words are perhaps closely akin. The writer for the accurate use in this narrative of words in the Cree tongue is under obligation to experts. When preparing his notes to his drama of "Tecumseh" he was indebted to his friend, Mr. Thomas McKay, of Prince Albert, Sask., a master of the Cree language, for the exact origin and derivation of the words Chippeway and Ojibway. Both are corruptions of O-cheepo-way, *cheepo* meaning "tapering," and *way* "sound," or "voice." The name was begot of the Ojibway's peculiar manner of lowering the voice at the end of a sentence. As "*wyan*" means a skin, it is not improbable that the word Chipewyan means tapering or "pointed" skin, referring, of course, to the peculiar garb of the Athapuskow Indians when the Crees first met with them.

The sites of old posts are to be found all over this region; but Chipewyan in the beginning of the last century was the great supply and trading-post of the North-West Company. From Sir John Franklin's Journal (1820) it would appear that the Hudson's Bay Company had begun, and, for some reason not given, had ceased trading on Lake Athabasca, as he says "Fort Wedderburne was a small post built

on Coal Island—now called Potato Island—about A.D. 1815, when the Hudson's Bay Company recommenced trading in this part of the country." He often visited this island post, then in charge of a Mr. Robertson, and, in June, engaged there for his memorable journey his bowmen, steersmen and middlemen, and an interpreter, his other men being furnished by the rival company. Fort Chipewyan was in charge at that time of Messrs. Keith and Black, of the North-West Company, a noticeable feature of the post being a tower built, Franklin says, about the year 1812, "to watch Indians who had evil designs."

The site was well chosen, being sheltered from storms from the lake side by a great bulwark of wooded and rocky islands. The largest is Potato Island, just opposite, its outliers being the Calf and English Islands—the Lapeta, Echeranaway and Theyaodene of the Chipewyans; the Petac, Mooostoos and Akayasoo of the Crees.

Fort Chipewyan stands upon a rising ground fronting a sort of bay formed by these islands, and at the time of our visit consisted of a trading-store, several large warehouses and the master's residence, etc., all of solid timber, erected in the days of Chief-factor MacFarlane, who ruled here for many years.*

*Mr. MacFarlane's career in the service of the Hudson's Bay Company is typical of the varied life and movements of its old-time adventurous traders. He entered the service in 1852, his first winter being spent as a clerk at Pembina (now Emerson), and also as trader in charge at the Long Creek outpost. From here he was transferred to Fort Rae, and afterwards to Fort Good Hope, Mackenzie River, where he remained six years. His next post was Fort Anderson, on the Begh-ula, or Anderson River, in the Barren Grounds, which he held for five years, much of his scientific work being done during excursions from this point. Afterwards he became trader and accountant at Fort Simpson, and was for two years in charge of the Mackenzie River district. This was succeeded by a six months' residence at Fort Chipewyan, where, subsequently, for fifteen years he had charge of the district. For two years he had control of the Caledonia district, in British Columbia, but removed to Fort Cumberland, Sask., where he remained for five years. Other removals followed until he finally retired from the service, and, returning to Winnipeg, has lived there ever since.



Inside Fort Chipewyan



Bishop Grouard's Mission and Church at Fort Chipewyan



Colin Fraser's trading-post at Fort Chipewyan

But old as the fort is, it has no relics—not even a venerable cabin. In the store were a couple of not very ancient flint-locks, and, upstairs, rummaging through some dusty shelves, I came across one volume of the Edinburgh, or second, edition of Burns in gray paper boards—a terrible temptation, which was nobly resisted. Though there was once a valuable library here, with many books now rare and costly, yet all had disappeared.

East of the fort are shelving masses of red granite, completely covered by a dark orange lichen, which gives them an added warmth and richness; and on the highest part stood a square lead sun-dial, which, at first sight, I thought had surely been set up by Franklin or Richardson, but which I was told was very modern indeed, and put up, if I am not mistaken, by Mr. Ogilvie, D.L.S. To the west of the fort is the Church of England Mission, and, farther up, the Roman Catholic establishment, the headquarters of our esteemed fellow-voyager, Bishop Grouard.* In line with the fort buildings, and facing the lake, stood a row of whitewashed cottages, all giving the place, with its environs, deeply indented shore and rugged spits of red granite, the

*The first Roman Catholic Mission in Athabasca was formed by Bishop Farrand the year after Bishop Taché's visit to Fort Chipewyan, about A.D. 1849, he being then a missionary priest. Bishop Farrand established other missions on Peace River, and went as far north as Fort Resolution, on Great Slave Lake. He died in 1890, and was succeeded by our guest, Bishop Grouard, O.M.I., *Eveque d'Ibora*, the present occupant of the See of Athabasca and Mackenzie River. This prelate was born at Le Mans, in France, and was educated there, but finished his education in Quebec. He was ordained by Bishop Taché, near Montreal, in 1862, and was sent at once to Chipewyan, where he learnt the difficult language of the natives in a year. He has worked at many points, and perhaps no man in all the North, with the exception of Archdeacon Macdonald, or the late Anglican Bishop Bompas, has or had as accurate a knowledge of the great Déné race, with its numerous subdivisions of Chipewyans, Beavers, Yellow Knives, Dog Ribs, Slaves, Nahanies, Rabbit Skins, Loucheaux, or, Squint Eyes (so named from the prevalence of strabismus amongst them), and of other tribes. All these were at one time not only at war with the Crees, but with each other, with the exception of the Slaves, who were always a tame and meek-spirited race, and were often subjected to and treated like dogs by the others. Indeed they were called by the Crees, Awughkanuk, meaning "cattle."

quaint appearance of some secluded fishing village on the Gulf of St. Lawrence.

In sight, but above the bay, was the trading-post of Colin Fraser, whose father, the McCrimmon of the North-West, was Sir George Simpson's piper. The late Chief-factor Camsell, of Fort Simpson, and myself paddled up to it, and were most hospitably entertained by Mr. Fraser and his agreeable family. His father's bagpipes, still in excellent order, were speedily brought out, and it was interesting to handle them, for they had heralded the approach of the autocratic little Governor to many an inland post from Hudson's Bay to Fraser River, over seventy years before.

Several days were spent at the fort taking declarations, but, unlike Vermilion or Dunvegan, there were few large families here, the applicants being mainly young people. The agricultural resources of this region of rocks are certainly meagre compared with those of Peace River. Potatoes, where there is any available soil, grow to a good size; barley was nearly ripe when we were there, and wheat ripens, too. But, of course, it is not a farming region, nor are fish plentiful at the west end of the lake, the Athabasca River, which enters there, giving for over twenty miles eastward a muddy hue to the water. The rest of the lake is crystal clear, and whitefish are plentiful, also lake trout, which are caught up to thirty, and even forty, pounds' weight.

The distance from Fort Chipewyan to Fond du Lac is about 185 miles, but the lake extends over 75 miles farther eastward in a narrow arm, giving a total length of about 300 miles, the greatest width being about 50 miles. The whole eastern portion of the lake is a desolate scene of primitive rock and scrub pine, with many quartz exposures, which are probably mineralized, but with no land, not even for a garden. The scenery, however, from Black Bay to Fond du Lac is very beautiful, consisting largely of islands as diversified and as numerous as the Thousand Islands in the St. Lawrence. These extremely

solitary spots should be, one would think, the breeding-grounds of the pelican, though it is said this bird really breeds on islands in the Great Slave River. If disturbed by man it is reputed to destroy its young and desert the place at once.

The Barren Ground reindeer migrate to the east end of this lake in October, and return in March or April, but this is not certain. Sometimes they unaccountably forsake their old migratory routes, causing great suffering, in consequence, to the Indians. Moose frequent the region, too, but are not numerous, whilst land game, such as prairie chickens, ptarmigan, and a grouse resembling the "fool-hen," is rather plentiful.

The Indians of Fond du Lac are healthy, though somewhat uncleanly in their habits, and fond of dress, which is that of the white man, their women being particularly well dressed.

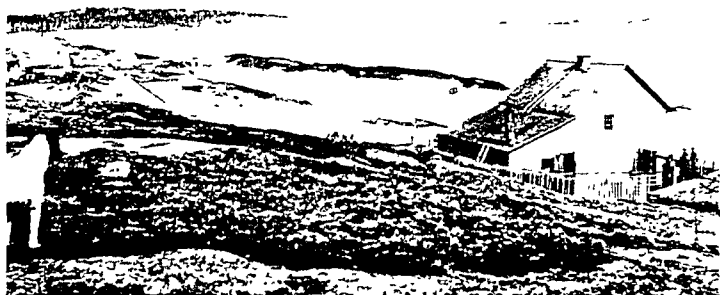
As an agricultural country the region has no value whatever; but its mineral resources, when developed, may prove to be rich and profitable. Mining projects were already afoot in the country, but far to the north on Great Slave Lake.

What was known as the "Helpman Party" was formed in England by Captain Alene, who died of pneumonia in December, 1898, three days after his arrival at Edmonton. The party consisted of a number of retired army officers, including Viscount Avonmore, with a considerable capital, \$50,000 of which was expended. They brought some of their outfit from England, but completed it at Edmonton, and thence went overland late in the spring. But sleighing being about over, they got to Lesser Slave Lake with great difficulty, and there the party broke up, Mr. Helpman and others returning to England, whilst Messrs. Jeffries and Hall Wright, Captain Hall, and Mr. Simpson went on to Peace River Crossing. From there they descended to Smith's Portage, on the Great Slave River, and wintered at Fort Resolution, on Great Slave Lake.

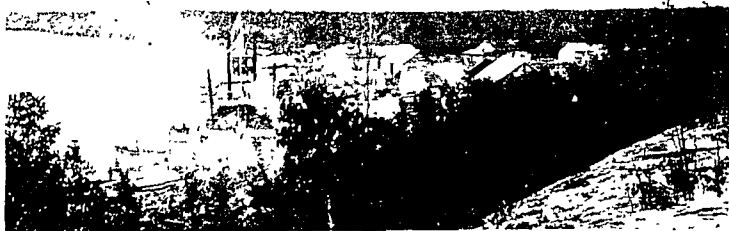
In the following spring they were joined by Mr. McKinlay, the Hudson's Bay Company's agent at the Portage, and he, accompanied by Messrs. Holroyd and Holt, who had joined the party at Smith's Landing, and by Mr. Simpson, went off on a prospecting tour through the north-east portion of Great Slave Lake, staking, *en route*, a number of claims, some of which were valuable, others worthless. The untruthful statements, however, of one of the party, who represented even the worst of the claims as of fabulous value, brought the whole enterprise into disrepute. The members of the party mentioned returned to England ostensibly to raise capital to develop their claims, but nothing came of it, not because minerals of great value do not exist there, but on account of remoteness and the difficulties of transport.

In 1898 another party was formed in Chicago, called "The Yukon Valley Prospecting and Mining Company," its chief promoters being a Mr. Willis and a Mr. Wollums of that city. The capital stock was put at a quarter of a million dollars, twenty-five thousand dollars being paid up. These organizers interested thirty-three other men in the enterprise, the agreement being that these should go to Dawson at the expense of the stockholders, and locate mining claims there, a half-interest in all of which was to be transferred to the company. These men proceeded to Calgary, and outfitted for Dawson, which they wished to reach by ascending the Peace River. At Calgary they were fortunate in procuring as leader a gentleman of large experience in the North, W. J. McLean, Esq., a retired Chief-factor of the Hudson's Bay Company, who pointed out the difficulties of such a route, and recommended, instead, a possible one *via* Great Slave Lake and the Mackenzie River to Fort Simpson, and thence up the Liard River to the height of land at or near Francis Lake, and so down the Pelly River and on to Dawson.

In February the party, led by him, left Edmonton with 160 ponies, sleds and sleighs, loaded with supplies, and pro-



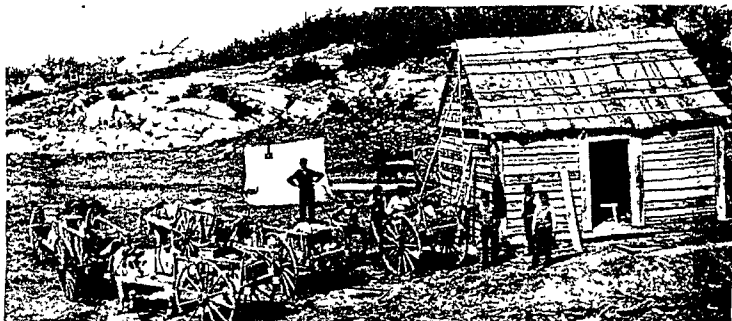
Lake Athabasca at Chipewyan. The three islands in the offing



Fort Smith and steamer "Graham," on Great Slave River



Fort Fond du Lac—East end of Lake Athabasca



"Red River" ox-cart. Still used on the portage at Fort Smith



ceeded, by an extremely difficult forest trail, to Lesser Slave Lake. They had no feed for the horses, save what they drew, and, of course, they reached the lake completely exhausted. Here, by Mr. McLean's advice, they sold the horses, and with the proceeds hired local freighters to carry them and their supplies to Peace River Crossing, where boats were built in which the party, with the exception of one of the organizers, Mr. Willis, who had returned in high dudgeon to Chicago, set out for Great Slave Lake. Before getting to Fort Resolution, Mr. McLean got private information from a former servant of his at that post, which led to an expedition to the north-east end of the lake, where he made valuable finds of copper and other minerals. Another trip was made, and additional claims were taken, and on Mr. McLean's return with a lot of samples of ore, he, with another prospector, came out, and proceeded to Chicago. His samples were tested there and in Winnipeg, and yielded in copper from 11 to 32 per cent.; and the galena 60 ozs. of silver to the ton. Other minerals, such as sulphur, coal, asphalt, petroleum, iron and salt were discovered, all of great promise, and his opinion is that when transport is extended to that region, it will prove to be a great storehouse of mineral wealth.

The other members of the party had at various times and places separated, some going here and some there; but all eventually left the country, and the company died a natural death. But Mr. McLean is not only a firm believer in the mineral wealth of the North, but in its resources otherwise. There are extensive areas of large timber, and the lakes swarm with fish. The soil on the Liard River is excellent, and he tells me that not only wheat but Indian corn will ripen there, as he himself grew both successfully when in charge of that district.

The mining enterprises referred to fell through, but I have described them at some length since they are very interesting as being the first attempts at prospecting with a view

to development in those remote regions. Failure, of course, at such a distance from transport and supplies, was inevitable. But some of the prospectors, Captain Hall and others who came out with ourselves, seemed to have no doubt that much of the country they explored is rich in minerals. Indeed, should the ancient repute of the Coppermine River be justified by exploration, perhaps the most extensive lodes on the continent will yet be discovered there.

If the Hudson's Bay route were developed, a short line of rail from the western end of Chesterfield Inlet would tap the mining regions prospected, and develop many great resources at present dormant. The very moss of the Barren Lands may yet prove to be of value, and be shipped to England as a fertilizer. I have been told by a gentleman who has travelled in Alaska that an enterprising American there is preparing to collect and ship moss to Oregon, where it will be fermented and used as a fertilizer in the dairy industry.

To return to Lake Athabasca. It seemed at one time to have been the rallying-place of the great Tiné or Déné race, to which, with the exception of the Crees, the Loucheaux, perhaps, and the Esquimaux, all the Indians of the entire country belong. It is said to have been a traditional and central point, such as Onondaga Lake was to the Iroquois.

It is noticeable that, in the nomenclature of the various Indians of the continent, the names by which they were known amongst themselves generally meant men, "original men," or people; *e.g.*, the Lenni Lenápe of the Delawares, with its equivalent, the Anishinápe of the Saulteaux, and the Naheowuk of the Crees. It is also the meaning of the word Déné, the generic name of a race as widely sundered, if not as widely spread, as the Algonquin itself.

The Chipewyan of Lake Athabasca speaks the same tongue as the Apaché of Arizona, the Navajo of Sonora, the Hoopa of Oregon, and the Sarcee of Alberta. The word Apaché has the same root-meaning as the word Déné, though that fierce race was also called locally the Shisiñdins, namely,

"The Forest People," doubtless from its original habitat in this region.

Owing to the agglutinative character of the aboriginal languages, numbering over four hundred, some philologists are inclined to attribute them all to a common origin, the Basque tongue being one of the two or three in Europe which have a like peculiarity. In the languages of the American Indians one syllable is piled upon another, each with a distinct root-significance, so that a single word will often contain the meaning of an ordinary English sentence. This polysynthetic character undoubtedly does point to a common origin, just as the Indo-European tongues trace back to Sanskrit. But whether this is indicative of the ancient unity of the American races, whose languages differed in so many other respects, and whose characteristics were so divergent, is another question.

One interesting impression, begot of our environment, was that we were now emphatically in what might be called "Mackenzie's country." In his "General History of the Fur-Trade," published in London in 1801, Sir Alexander tells us that, after spending five years in Mr. Gregory's office in Montreal, he went to Detroit to trade, and afterwards, in 1785, to the Grand Portage (Fort William).

The first traders, he tells us, had penetrated to the Athabasca, *via* Methy Portage, as early as 1791, and in 1783-4 the merchants of Lower Canada united under the name of The North-West Company, the two Frobishers—Joseph Frobisher had traded on the Churchill River as early as 1775—and Simon McTavish being managers. The Company, he says, "was consolidated in July, 1787," and became very powerful in more ways than one, employing, at the time he wrote, over 1,400 men, including 1,120 canoemen. "It took four years from the time the goods were ordered until the furs were sold;" but, of course, the profits, compared with the capital invested, were very great, until the strife deepened between the Montrealers and the Hudson's Bay Company, whose first inland post

was only established at Sturgeon River, Cumberland Lake, in 1774, by the adventurous, if not over-valiant, Samuel Hearne. The rivalries of these two companies nearly ruined both, until they got rid of them by uniting in 1821, when the Nor'-Westers became as vigorous defenders of King Charles's Charter as they had before been its defiers and defamers.

Fort Chipewyan was established, Mackenzie says, by Mr. Pond, in 1788, the year after his own arrival at the Athabasca, where, by the way, in the fall of 1787, he describes Mr. Pond's garden at his post on that river as being "as fine a kitchen garden as he ever saw in Canada." Fort Chipewyan, however, though not established by Mackenzie, was his headquarters for eight years. From here he set out in June, 1789, on his canoe voyage to the Arctic Ocean, and from here in October, 1792, he started on his voyage up the Peace River on his way to the Pacific coast, which he reached the following year.

In his history he states: "When the white traders first ventured into this country both tribes were numerous, but smallpox destroyed them." And, speaking of the region at large, he, perhaps, throws an incidental side-light upon the Blackfoot question. "Who the original people were," he says, "that were driven from it when conquered by the Kinisteneaux (the Crees) is not now known, as not a single vestige remains of them. The latter and the Chipewyans are the only people that have been known here, and it is evident that the last mentioned consider themselves as strangers, and seldom remain longer than three or four years without visiting their friends and relatives in the Barren Grounds, which they term their native country."*

*It is a reasonable conjecture that these "original people," driven from Athabasca in remote days, were the Blackfeet Indians and their kindred, who possibly had their base at that time, as in subsequent days, at the forks and on both branches of the Saskatchewan. The tradition was authentic in Dr. (afterwards Sir John) Richardson's time. Writing on the Saskatchewan eighty-eight years ago he places the Eascasts, "called by the Crees the Assinipoytuk, or Stone Indians, west of the Crees, between them and the Blackfeet."

Besides Mackenzie's, another name, renowned in the tragic annals of science, is inseparably connected with this region, viz., that of Franklin, who has already been incidentally referred to. Others recur to one, but these two great names are engrained, so to speak, in the North, and cannot be lightly passed over in any descriptive work. The two explorers were friends, or, at any rate, acquaintances; and, before leaving England, Franklin had a long conversation in London with Mackenzie, who died shortly afterwards. The record of his "Journey to the Shores of the Polar Ocean," accompanied by Doctor Richardson and Midshipmen Back and Hood, in the years 1819-20-21 and '22, practically began at York Factory in August of the former year. The rival companies were still at war, and in making the portage at the Grand Rapids of the Saskatchewan, with a party of Hudson's Bay Company traders, "they advanced," he says, "armed, and with great caution." When he returned on the 14th July, 1822, to York, the warring companies had united, and he and his friends were met there by Governor Simpson, Mr. McTavish, and all the united

The Assiniboines are an offshoot of the great Sioux, or Dakota, race called by their congeners the Hohas, or "Rebels." They separated from their nation at a remote period owing to a quarrel, so the tradition runs, between children, and which was taken up by their parents. Migrating northward the Eascahs, as the Assiniboines called themselves, were gladly received and welcomed as allies by the Crees, with whom, as Dr. Richardson says, "they attacked and drove to the westward the former inhabitants of the banks of the Saskatchewan." "The nations," he continues, "driven westward by the Eascahs and Crees are termed by the latter Yatchee-thinyoowuc, translated Slave Indians, but properly 'Strangers.'" This word Yatchee is, of course, the Iyaghchi of the Crees in their name for Lesser Slave River and Lake. Richardson describes them as inhabiting the country round Fort Augustus and the foot of the Rockies, and "so numerous now as to be a terror to the Assiniboines themselves." They are divided, he says, into five nations, of whom the Fall Indians, so called from their former residence at Cole's Falls, near the Forks of the Saskatchewan, were the most numerous, consisting of 500 tents, the Piegans of 400, the Blackfeet of 350, the Bloods of 300, and the Sarcees of 150, the latter tribe being a branch of the Chipewyans which, having migrated like their congeners, the Apaches, from the north, joined the Crees as allies, just as the Assiniboines did from the south.

partners, after a voyage by water and land of over 5,500 miles. Franklin spent part of the winter at Cumberland post, which had been founded to counteract the rivalry of Montreal. "Before that time," he says, "the natives took their furs to Hudson's Bay, or sold to the French Canadian traders, who," he adds, "visited this part of the country as early as 1697." If so, the credit for the discovery of the Saskatchewan has been wrongly given to the Chevalier, as he was called, à son of Varenne, Sieur de la Varendrye.

Franklin left Cumberland in January, 1820, by dog train for Chipewyan, *via* Fort Carlton and Green Lake. Fort Carlton was the great food supply post, then and long afterwards, of the Hudson's Bay Company, buffalo and wapiti being very abundant. The North-West Company's fort, called La Montee, was three miles beyond Carlton, and harbored seventy French Canadians and sixty women and children, who consumed seven hundred pounds of meat daily, the ration being eight pounds. This post was at that time in charge of Mr. Hallett, a forebear, if I mistake not, of my old friend, William Hallett, leader of the English Plain Hunt, and a distinguished loyalist in the rebellion of 1869.

Franklin and Back left Fort Carlton on the 8th February, and reached Green Lake on the 17th. The North-West Company's post at the lake was managed by Dugald Cameron, and that of the Hudson's Bay Company by a Mr. MacFarlane, and, having been equipped at both posts with carioles, sledges and provisions, they left "under a fusillade from the half-breed women." From the end of the lake they followed for a short distance a small river, then "crossed the woods to Beaver River, and proceeding along it, passed the mouths of two rivers, the latter of which, they were told, was a channel by which the Indians go to Lesser Slave Lake." On the 11th of March they reached Methy Lake—so called from an unwholesome fish of the burbot species found there, only the liver of which is fit to eat—

crossed the Methy portage on the 13th, and, amidst a chaos of vast ravines and the wildest of scenery, descended the next day to the Clearwater River. Thence they followed the Indian trail on the north bank, passing a noted scene, "a romantic defile of limestone rocks like Gothic ruins," and, crossing a small stream, found pure sulphur deposited by springs and smelling very strongly. On the 17th they got to the junction of the Clearwater with the Athabasca, where Fort McMurray now stands, and next day reached the Pierre au Calumet post, in charge of a Mr. Stewart, who had twice crossed the mountains to the Pacific coast. The place got its name from a soft stone found there, of which the Indians made their pipes.

Franklin notes the "sulphurous springs" and "bituminous salt" in this region, also the statement of Mr. Stewart, who had a good thermometer, "that the lowest temperature he had ever witnessed in many years, either at the Athabasca or Great Slave Lake, was 45 degrees below zero," a statement worth recording here.

On the 26th of March the party arrived at Fort Chipewyan, the distance travelled from Cumberland House being 857 miles. He notes that at the time of his arrival the fort was very bare of both buffalo and moose meat, owing, it was said, to the trade rivalry, and that where some eight hundred packs of fur used to be shipped from that point, only one-half of that number was now sent. Liquor was largely used by both companies in trade, and scenes of riot and violence ensued upon the arrival of the Indians at the fort in spring, and whom he describes otherwise as "reserved and selfish, inhospitable and beggars, but honest and affectionate to children." They painted round the eyes, the cheek-bones and the forehead, and all the race, except the Dog Ribs and the Beavers, believed that their forefathers came from the East. The Northern Indians, Franklin says, suppose that they originally sprang from a dog, and about A.D. 1815 they destroyed all their dogs, and compelled their

women to take their place. Their chiefs seemed to have no power save over their own families, and their conjurers were supported by voluntary contributions of provisions. These are some of the chief characteristics Franklin notes of the Indians who frequented Fort Chipewyan, at which point he spent several months. One extraordinary circumstance, however, remains to be mentioned. It is that of a young Chipewyan who lost his wife in her first pregnancy. He applied the child to his left breast, from which a flow of milk took place. "The breast," he adds, "became of an unusual size." Here he and Back, afterwards Admiral Back, were joined by Dr. Richardson and Mr. Hood, who had come from Cumberland House by the difficult Churchill River route, and on July 18th, at noon, the whole party left the fort on their tragic expedition, the party, aside from those named, consisting of John Hepburn, seaman, an interpreter and fifteen voyageurs, including, unfortunately, an Iroquois Indian, called Michel Teroahante. At two p.m. they entered Great Slave River, here three-quarters of a mile wide, and, passing Red Deer Islands and Dog River, encountered the rapids, overcome by seven or eight portages, from the Casette to the Portage of the Drowned, all varying in length from seventy to eight hundred yards.

On the 21st they landed at the mouth of Salt River to lay in a supply of salt for their journey, the deposits lying twenty-two miles up by stream. These natural pans, or salt plains, he describes—and the description answers for to-day—as "bounded on the north and west by a ridge between six and seven hundred feet high. Several salt springs issue at its foot, and spread over the plain, which is of tenacious clay, and, evaporating in summer, crystallize in the form of cubes. The poisson inconnu, a species of salmon which ascends from the Arctic Ocean, is not found, he says, above this stream. A few miles below it, however, a buffalo plunged into the river before them, which they killed, and those animals still frequent the region.

On the 25th of July they passed through the channel of the Scaffold to Great Slave Lake, and, landing at Moose Deer Island, found thereon the rival forts, of course, within striking distance of each other, and in charge, as usual, of rival Scotsmen. At Great Slave Lake I must part company with Franklin's Journal, since our own negotiations only extended to its south shores. But who that has read it can ever forget the awful return journey of the party from the Arctic coast, through the Barren Lands, to their own winter quarters, which they so aptly named Fort Resolution? In the tales of human suffering from hunger there are few more terrible than this. All the gruesome features of prolonged starvation were present; the murder of Mr. Hood and two of the voyageurs by the Iroquois; his bringing to the camp a portion of human flesh, which he declared to be that of a wolf; his death at the Doctor's hands; the dog-like diet of old skins, bones, leather pants, moccasins, *tripe de roche*; the death of Peltier and Semandre from want, and the final relief of the party by Akaitcho's Indians, and their admirable conduct. And all those horrors experienced over five hundred miles beyond Fort Chipewyan; itself thousands of miles beyond civilization! Did the noble Franklin's last sufferings exceed even these? Perhaps; but they are unrecorded.

To return to our muttons. Some marked changes had taken place, and for the better, in Chipewyan characteristics since Franklin's day; not surprising, indeed, after eighty years of contact with educated, or reputable, white men; for miscreants, like the old American frontiersmen, were not known in the country, and if they had been, would soon have been run out. There was now no paint or "strouds" to be seen, and the blanket was confined to the bed. In fact, the Indians and half-breeds of Athabasca Lake did not seem to differ in any way from those of the Middle and Upper Peace River, save that the former were all hunters and fishermen, pure and simple, there being little or no agriculture. It was impossible to study

the manners and customs of the aborigines, since we had no time to observe them closely. They have their legends and traditions and remnants of ceremonies, much of which is upon record, and they cherish, especially, some very curious beliefs. One, in particular, we were told, obtained amongst them, namely, that the mastodon still exists in the fastnesses of the Upper Mackenzie. They describe it as a monster many times larger than the buffalo, and they dread going into the parts it is supposed to haunt. This singular opinion may be the survival of a very old tradition regarding that animal, but is more likely due to the presence of its remains in the shape of tusks and bones found here and there throughout the Mackenzie River district and the Yukon.*

On the 9th the steamer *Grahame* arrived from Smith's Landing, bringing with her about 120 baffled Klondikers, returning to the United States, there being still some sixty more, they said, down the Mackenzie River, who intended to make their way out, if possible, before winter. They had a solitary woman with them who had discarded a duffer husband, and who looked very self-reliant, indeed, being girt about with bowie-knife and revolver, but otherwise not alarming.

*A similar belief, it is said, exists amongst the Indians of the Yukon. The remains of the primeval elephant are exceedingly abundant in the tundras of Siberia, and a considerable trade in mammoth ivory has been carried on between that region and England for many years. It is supposed that the Asian elephant advanced far to the North during the interglacial period and perished in the recurrent glacial epoch. Its American congener, the mastodon, found its way from Asia to this continent during the Drift period, when, it is believed, land communication existed in what is now Bering's Strait, and perished in a like manner. It was not a sudden but a gradual extinction in their native habitats, due to natural causes, such as encroaching ice and other material changes in the animals' environment. This, I believe, is the accepted scientific opinion of to-day. But the fact that these animals are at times exposed entire by the falling away of ice-cliffs or ledges, their flesh being quite fresh and fit food for dogs, and even men, opens up a very interesting field of inquiry and conjecture. In the bowels of a mammoth recently revealed in North-Eastern Siberia

It was certainly a motley crowd, and some of its members by no means honest. Chief-factor Camsell, who had just come from Fort Simpson, told me they had stolen from every house where they had a chance, and mentioned, amongst other things, a particularly ungrateful theft of a whip-saw from a native's cabin shortly after an Indian had, with much pains, overtaken them with a similar one, which they had lost on the trail. Their departure, therefore, was not lamented, and the natives were glad to get rid of them.

We ourselves boarded the steamer for Fort McMurray on the 11th, but, owing to bad weather, did not get off till mid-day, and even then the lake was so rough that we had to anchor for a while in the lee of an island. Colin Fraser had started ahead of us with his big scow and cargo of furs, valued at \$15,000, and kept ahead with his fine crew of ten expert trackers. When the weather calmed we steamed across to the entrance of one of the various channels connecting the Athabasca River with the lake, and soon found ourselves skirting the most extensive marshes and feeding-grounds for game in all Canada; a delta renowned throughout

vegetable food was found, probably tropical, at all events unknown to the botany of to-day. The foregoing facts seem to be at variance with the doctrine of Uniformity, or with anything like a slow process. The entombment of these animals must have been very sudden, and due, one would naturally think, to a tremendous cataclysm followed by immediate freezing, else their flesh would have become tainted. A recent English writer predicts another deluge owing to the constant accumulation of ice at the Antarctic Pole, which for untold ages has been attracting and freezing the waters of the Northern Hemisphere. A lowering process, he says, has thus been going on in the ocean levels to the north through immeasurable time, its record being the ancient water-marks now high up on the mountain sides of British Columbia and elsewhere. It is certainly not unthinkable that, if subject to such a displacement of its centre of gravity, our planet at some inconceivably remote period capsized, so that what were before the Tropics became the Poles, and that such a catastrophe is not only possible but is certain to happen again. As a conjecture it may be unscientific; but how many of the accepted theories of science have ceased to be! As a matter of fact, she has been very busy burying her dead, particularly of late years, and her theory of the extinction of the primeval elephant may yet prove to be one of them.

the North for its abundance of waterfowl, far surpassing the St. Clair flats, or any other region in the East.

Next morning, upon rounding a point, three full-grown moose were seen ahead, swimming across the river. An exciting, and even hazardous, scene ensued on board, the whole Klondike crowd firing, almost at random, hundreds of shots without effect. Two of the noble brutes kept on, and reached the shore, disappearing in the woods; but the third, a three-year-old bull moose, foolishly turned, and lost its life in consequence. It was hauled on deck, bled and flayed, and was a welcome addition to the steamer's table.

That night a concert was improvised on deck, in which the music-hall element came to the front. But one speedily tired of the "Banks of the Wabash," and other ditties; in fact, we were burning to get to Fort McMurray, where we expected letters and papers from the outer world and home, and nothing else could satisfy us. By evening we had passed Burnt Point, also Poplar Point, where the body of an unfortunate, called Patterson, who had been drowned in one of the rapids above, was recovered in spring by some Indians, the body being completely enclosed in a transparent coffin of ice. On the following day we passed Little Red River, and next morning reached the fort, where, to our infinite joy, we received the longed-for letters and papers—our first correspondence from the far East.

Fort McMurray consisted of a tumble-down cabin and trading-store on the top of a high and steep bank, which had yet been flooded at times, the people seeking shelter on an immense hill which overlooked it. Above an island close by is the discharge of the Clearwater River, the old canoe route by which the supplies for the district used to come, *via* Isle a la Crosse. At McMurray we left the steamer and took to our own boats, our Commission occupying one, and Mr. Laird and party the other. The trackers got into harness at once, and made very good time for some miles, the current not being too swift just here for fast travelling.



The bull moose killed in the Athabasca below Fort McMurray



The Half-breed Commission Boat leaving Fort McMurray to ascend the Athabasca Pierre Cyr at the bow



Bank of the Athabasca above Fort McMurray



CHAPTER IX.

THE ATHABASCA RIVER REGION.

WE were now traversing perhaps the most interesting region in all the North. In the neighbourhood of McMurray there are several tar-wells, so called, and there, if a hole is scraped in the bank, it slowly fills in with tar mingled with sand. This is separated by boiling, and is used, in its native state, for gumming canoes and boats. Farther up are immense towering banks, the tar oozing at every pore, and underlaid by great overlapping dykes of disintegrated limestone, alternating with lofty clay exposures, crowned with poplar, spruce and pine. On the 15th we were still following the right bank, and, anon, past giant clay escarpments along it, everywhere streaked with oozing tar, and smelling like an old ship.

These tar cliffs are here hundreds of feet high, of a bold and impressive grandeur, and crowned with firs which seem dwarfed to the passer-by. The impregnated clay appears to be constantly falling off the almost sheer face of the slate-brown cliffs, in great sheets, which plunge into the river's edge in broken masses. The opposite river bank is much more depressed, and is clothed with dense forest.

The tar, whatever it may be otherwise, is a fuel, and burned in our camp-fires like coal. That this region is stored with a substance of great economic value is beyond all doubt, and, when the hour of development comes, it will, I believe, prove to be one of the wonders of Northern Canada. We were all deeply impressed by this scene of Nature's chemistry, and realized what a vast storehouse of not only hidden but exposed resources we possess in this enormous country. What is unseen can only be con-
121

tured; but what is seen would make any region famous. We now came once more to outcrops of limestone in regular layers, with disintegrated masses overlying them, or sandwiched between their solid courses. A lovely niche, at one point, was scooped out of the rock, over the coping of which poured a thin sheet of water, evidently impregnated with mineral, and staining the rock down which it poured with variegated tints of bronze, beautified by the morning sun.

With characteristic grandeur the bends of the river "shouldered" into each other, giving the expanses the appearance of lakelets; and after a succession of these we came to the first rapid, "The Mountain"—Watchikwe Powistic—so called from a peak at its head, which towered to a great height above the neighbouring banks. The rapid extends diagonally across the river in a low cascade, with a curve inward towards the left shore. It was decided to unload and make the portage, and a very ticklish one it was. The boats, of course, had to be hauled up stream by the trackers, and grasping their line I got safely over, and was thankful. How the trackers managed to hold on was to me a mystery; but the steep and slippery bank was mere child's play to them. The right bank, from its break and downward, bears a very thick growth of alders, and here we found the wild onion, and a plant resembling spearmint.

In the evening we reached the next rapid, called the Cascades—Nepe Kabátekik—"Where the water falls," and camping there, we had a symposium in our tent, which I could not enjoy, having headache and heartburn, a nasty combination. The 16th was the hottest day of the season—a hard one on the trackers, who now pulled along walls of solid limestone, perpendicular or stepped, or wrought into elaborate cornices, as if by the art of some giant stone-cutter. At one place we came to a lovely little *rideau*, and on the opposite shore were two curious caves, scooped out of the rock, and supported by Egyptian-like columns wrought by the age-action of water.

Towards evening we reached the Crooked Rapid—Kahwak o Powestik—and here the portage path followed on the summit of the limestone rampart, which the viscous-gumbo-slides made almost impassable in rainy weather, and indeed very dangerous, forming, at the time we passed, pits of mud and broken masses of half-hard clay, along the very verge of the wall of rock, likely at any moment to give way and precipitate one into the raging torrent below. At other parts the path was jammed out to the wall-edge, to be stepped round with a gulp in the throat. But these and other features of a like interesting character, though a lively experience to the tenderfoot, were of no account whatever to those wonderful trackers. At one of the worst spots I was hesitating as to how and where I should step next, when a carrier, returning for his load, seeing my fix, humped his back with a laugh and gave me a lift over.

We camped for the night below a point where the river makes a sharp bend, parallel with its course. This we surmounted in the morning, following a rounded wall of limestone, for all the world like a decayed rampart of some ancient city. A wide floor of rock at its base made beautiful walking to a place where the lofty escarpment showed exposures of limestone underlying an enormous mass of dark sandstone, topped by tar-clay. It is a portentous cliff, bearing a curiously Eastern look, as if some great pyramid had been riven vertically, and the exposed surface scarred and scooped by the weather into a multitude of antic hollows, grotesque projections, and unimaginable shapes. Here, also, the knives of passers-by had carved numerous autographs, marring the majestic cliff with their ludicrous incongruity. Are we not all sinners in this way? "John Jones," cut into a fantastic buttress which would fittingly adorn a wizard's temple, may be a poor exhibit of human vanity; but, after all, the real John Jones is more imperishable than the rock, which seems scaling, anyway, from the top, and may, by and by, carry the inscriptions with it. It

was hard to tear one's self away from such a wonderful structure as this, the most striking feature of its kind on the whole river.

Farther on, escarped banks, consisting of boulders and pebbles imbedded in tenacious clay, rose to a great height, their tops clothed with rich moss, and wooded with a close growth of pine, the hollows being full of delicious raspberries, now dead ripe.

By and by we encountered the Long Rapids—Kaúkinwauk Powestik—and, some hours afterwards, entered the Middle Rapid—Tuwáo Powestik—the worst we had yet come to, full of boulders and sharp rocks, with a strong current. Very dexterous management was required here on the part of steersman and bowman; a snapt line or a moment's neglect, and a swing to broadside would have followed, and spelled ruin.

It was evening before this rapid was surmounted, and all hands, dog-tired with the long day's pull, were glad to camp at the foot of the Boiler Rapid, the next in our ascent, and so called from the wrecking of a scow containing a boiler for one of the Hudson's Bay Company's steamers. It was the most uncomfortable of camps, the night being close, and filled with the small and bloodthirsty Athabasca mosquito, by all odds the most vicious of its kind. This rapid is strewn with boulders which show above water, making it a very "nice" and toilsome thing to steer and track a boat safely over it, but the tracking path itself is stony and firm, a fortunate thing at such a place. There are no exposures of rock at the foot of this rapid; but along its upper part runs a ledge of asphalt-like rock as smooth as a street pavement, with an outer edge as neatly rounded as if done with a chisel. This was the finest bit of tracking path on the river, excepting, perhaps, the great pavement beneath the cliff at the Long Rapids.

In this region the river scenery changes to a succession of cut-banks, exposed in all directions, and in almost all



Tracking up an Athabasca rapid



A rest near Grand Rapids



In the Grand Rapids of the Athabasca

situations. Immense towering hills of sand, or clay, are cut down vertically, some facing the river, others at right angles to it, and others inland, and almost inclosed by projecting shoulders of the wooded heights. These cut-banks carry layers of stone here and there, and are specked with boulders, and in some places massed into projecting crests, which threaten destruction to the passer-by. Otherwise the scenery is desolate, mountainous always, and wooded, but with much burnt timber, which gives a dreary look to the region. The cut-banks are unique, however, and would make the fortune of an Eastern river, though here little noticed on account of their number.

It was now the 18th, and the weather was intensely hot, foreboding change and the August freshet. We had camped about eight miles below the Burnt Rapid, and the men were very tired, having been in the water pretty much since morning. Directly opposite our camp was a colossal cliff of clay, around which, looking upward, the river bent sharply to the south-west, very striking as seen beneath an almost full moon breaking from a pile of snowy clouds, whilst dark and threatening masses gathered to the north. The early, foggy morning revealed the freshet. The river, which had risen during the night, and had forced the trackers from their beds to higher ground, was littered from bank to bank with floating trees, logs and stumps, lifted from many a drift up stream, and borne down by the furious current. At one of the short breathing spells the water rose two inches in twenty minutes, and the tracking became exceedingly bad, the men floundering to their waists in water, or footing it insecurely on steep and slippery ledges along the water's marge. About mid-day the anticipated change took place in the weather. Thick clouds closed in with a driving rain and a high raw wind, presaging the end of summer.

It was now, of course, very bad going, and camp was made, in the heavy rain, on a high flat about two miles below the Burnt Rapid. Though a tough spot to get up to, the flat

proved to be a prime place for our camp, with plenty of dead fallen and standing timber, and soon four or five "long fires" were blazing, a substantial supper discussed, and comfort succeeded misery. The next day (Sunday) was much enjoyed as a day of rest, the half-breeds at their beloved games, the officials writing letters. The weather was variable; the clouds broke and gathered by turns, with slight rain towards evening, and then it cleared. As a night camp it was picturesque, the full moon in the south gleaming over the turbid water, and the boatmen lounging around the fires like so many brigands.

Next morning we surmounted the Brulé Rapid—Pusitáo Powestik—short but powerful, with a sharp pointed rock at its head, very troublesome to get around. Above this rapid the bank consists of a solid, vertical rampart of red sandstone, its base and top and every crack and crevice clothed with a rich vegetation—a most beautiful and striking scene, forming a gigantic amphitheatre, concentrated by the seeming closing-in of the left bank at Point Brulé upon the long straight line of sandstone wall on the right. Nothing finer, indeed, could be imagined in all this remarkable river's remarkable scenery than this impressive view, not from jutting peaks, for the sky-line of the banks runs parallel with the water, but from the antique grandeur of their sweep and apparent junction.

That afternoon we rounded Point Brulé, a high, bold cliff of sandstone with three "lop-sticks" upon its top. The Indian's lop-stick, called by the Cree piskootenusk, is a sort of living talisman which he connects in some mysterious way with his own fate, and which he will often go many miles out of his direct course to visit. Even white men fall in with the fetish, and one of the three we saw was called "Lambert's lop-stick." I myself had one made for me by Gros Oreilles, the Saulteau Chief, nearly forty years ago, in the forest east of Pointe du Chêne, in what is now Manitoba. They are made by stripping a tall spruce tree

of a deep ring of branches, leaving the top and bottom ones intact. The tree seems to thrive all the same, and is a very noticeable, and not infrequent, object throughout the whole Thickwood Indian country.

Just opposite the cliff referred to, the Little Buffalo, a swift creek, enters between two bold shoulders of hills, and on its western side are the wonderful gas springs. The "amphitheatre" sweeps around to, and is cloven by, that stream, its elevation on the west side being lofty, and deeply grooved from its summit downward, the whole locality at the time of our visit being covered with raspberry bushes loaded with fruit.

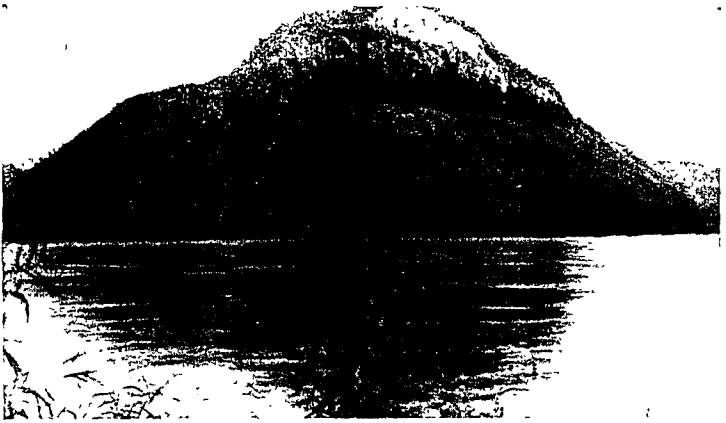
The gas escapes from a hole in the ground near the water's edge in a pillar of flame about thirty inches high, and which has been burning time out of mind. It also bubbles, or, rather, foams up, for several yards in the river, rising at low water even as far out as mid-stream. There is a level plateau at the springs, several acres in extent, backed by a range of hills, and if a stake is driven anywhere into this, and withdrawn, the gas, it is said, follows at once. They are but another unique feature of this astonishing stream.

For a long distance the upper prairie level exposes good soil, always clay loam, and there can be little doubt that there is much fertile land in this district. That night we slept, or tried to sleep, in the boat, and made a very early start on a raw, cloudy morning, the tracking being mainly in the water. We now passed great cliffs of sandstone, some almost shrouded in the woods, and came upon many peculiar circular stones, as large as, and much resembling, mill-stones. Towards evening we passed Pointe la Biche, and met Mr. Connor, a trader, with two loaded York boats, going north, and whom we silently blessed, for he brought additional mail for ourselves. What can equal the delight in the wilderness of hearing from home! It was impossible to make Grand Rapids, and we camped where we were, the night cold and raw, but enlivened by the reading and re-reading of letters and newspapers.

Next morning, crossing the right bank of the river, and leaving the boat, we walked to the foot of Grand Rapids. Our path, if it could be called such, lay over a toilsome jumble of huge, sharp-edged rocks, overhung by a beetling cliff of reddish-yellow sandstone, much of which seemed on the point of falling. This whole bank, like so much of this part of the river, is planted, almost at regular intervals, with the great circular rocks already referred to. These globular or circular masses are a curious feature of this region. They have been shaped, no doubt, by the action of eddying water, yet are so numerous, and so much alike, as to bespeak some abnormally uniform conditions in the past.

The Grand Rapids—Kitchi Po-westik—the most formidable on the river, are divided by a narrow, wooded island, over a quarter of a mile in length, upon which the Hudson's Bay Company have a wooden tramway, the cars being pushed along by hand. Towards the foot of the island is a smaller one near the left shore, and here is the larger cascade, a very violent rapid, with a fall from the crest to the foot of the island of thirty feet, more or less. The narrower passage is to the right of the island, and is called the "Free Traders' Channel." The river, in full freshet, was very muddy-looking, detracting much from the beauty of the rapids.

The Hudson's Bay Company have storehouses at each end of the tramway, but for their own use only. Free-traders have to portage their supplies over a very rough path beneath the cliffs. Both banks of the river are of sandstone, capped on the left by a wall of cream-coloured rock, seventy or eighty feet in height, at a guess. A creek comes in from the west which has cloven the sandstone bank almost to the water's edge; and running along the top of these sandstone formations are, everywhere, thick layers of coal, which is also found, in a great bed, on the opposite shore, and about three miles back from the river. The coal had been used by a trapper there, and is a good burner and heater, leaving



View on the Athabasca near the Landing



Tracking past grotesque alto-relievos on an Athabasca cut bank



Tracking up the Grand Rapids of the Athabasca—The Island and H. B. Co. storehouse in the background



little ash or clinker. These coal beds seem to extend in all directions, on both sides of the river, and underlie a very large extent of country. The inland country for some eight or ten miles had been examined by Sergeant Anderson, of the Mounted Police post here, who described it as consisting of wide ridges, or tables, of first-rate soil, divided by shallow muskegs; a good farming locality, with abundance of large, merchantable spruce timber. Moose were plentiful in the region, and it was a capital one for marten, one white trapper, the winter before our visit, having secured over a hundred skins.

On the 25th we left our comfortable spruce beds and "long fires," and tracked on to House River, which we reached at nine a.m. Here there is a low-lying, desolate-looking, but memorable, "Point," neighboured by a concave sweep of bank. The House is a small tributary from the east, but very long, rising far inland; and here begins the pack-trail to Fort McMurray, about one hundred miles in length, and which might easily be converted into a waggon-road, as also another which runs to Lac la Biche. Both trails run through a good farming country, and the former waggon-road would avoid all the dangers and laborious rapids whose wearisome ascent has been described.

The Point itself is tragic ground, showing now but a few deserted cabins and some Indian graves—one of which had a white paling around it, the others being covered with gray cotton—which looked like little tents in the distance. These were the graves of an Indian and his wife and four children, who had pitched through from Lac la Biche to hunt, and who all died together of diphtheria in this lonely spot. But here, too, many years ago, a priest was murdered and eaten by a weeghteko, an Iroquois from Caughnawaga. The lunatic afterwards took an Indian girl into the depths of the forest, and, after cohabiting with her for some time, killed and devoured her. Upon the fact becoming known, and being pursued by her tribe, he fled to the scene of his

horrible banquet, and there took his own life. Having rowed across the river for better tracking, as we crawled painfully along, the melancholy Point with its lonely graves, deserted cabins and cannibal legend receded into eerie distance and wrapped itself once more in congenial solitude.

The men continued tracking until ten a.m., much of the time wading along banks heavily overhung with alders, or along high, sheer walls of rock, up to the armpits in the swift current. The country passed through was one giant mass of forest, pine and poplar, resting generally upon loamy clay—a good agricultural country in the main, similar to many parts of Ontario when a wilderness.

We camped at the Joli Fou Rapids, having only made about fifteen miles. It was a beautiful spot, a pebbly shore, with fine open forest behind, evidently a favourite camping-place in winter. Next morning the trackers, having recrossed for better footing, got into a swale of the worst kind, which hampered them greatly, as the swift river was now at its height and covered with gnarled driftwood.

The foliage here and there showed signs of change, some poplars yellowing already along the immediate banks, and the familiar scent of autumn was in the air. In a word, the change so familiar in Manitoba in August had taken place here, to be followed by a balmy September and the fine fall weather of the North, said to surpass that of the East in mildness by day, though perhaps sharper by night. We were now but a few miles from the last obstruction, the Pelican Rapids, and pushed on in the morning along banks of a coal-like blackness, loose and friable, with thin cracks and fissures running in all directions, the forest behind being the usual mixture of spruce and poplar. By mid-day we were at the rapids, by no means formidable, but with a ticklish place or two, and got to Pelican Portage in the evening, where were several shanties and a Hudson's Bay freighting station. Here, too, is a well which was sunk for petroleum, but which struck gas instead, blowing up

the borer. It was then spouting with a great noise like the blowing-off of steam, and, situated at such a distance from the shaft at the Landing and from the Point Brulé spiracle described, indicated, throughout the district, available resources of light, heat and power so vast as almost to beggar imagining.

Mr. Ross having obtained on the 14th the adhesion of the Crees to the Treaty at Wahpooškow, it was now decided that the Scrip Commission should make the canoe trip to that lake, whilst Mr. Laird and party would go on to Athabasca Landing on their way home. Accordingly Matcheese—"The Teaser"—a noted Indian runner, was dispatched with our letters to the Landing, 120 miles up the river. This Indian, it was said, had once run from the Landing to Edmonton, ninety-five miles, in a single day, and had been known to carry 500 pounds over a portage in one load. I myself saw him shoulder 350 pounds of our outfit and start off with it over a rough path. He was slightly built, and could not have weighed much over nine stone, but was what he looked to be, a bundle of iron muscles and nerves.

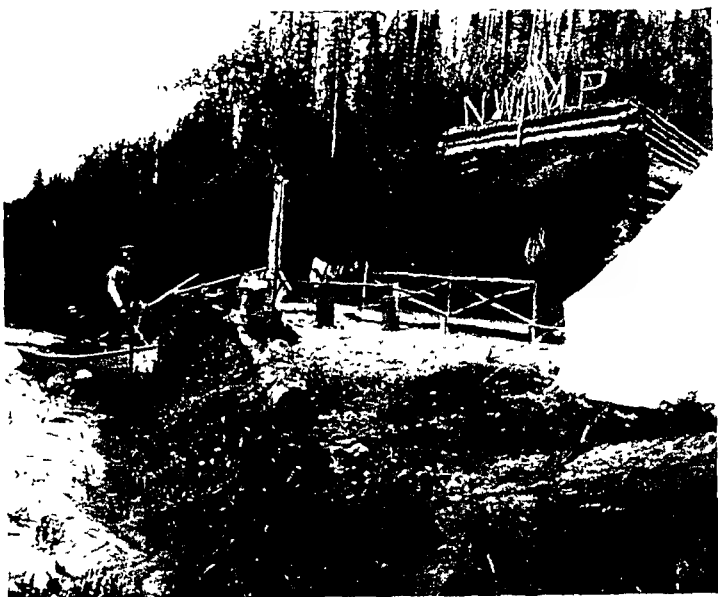
On the 29th Mr. Laird and party bade us good-bye, and an hour later we set out on our interesting canoe trip to the Wahpooškow, a journey which led us into the heart of the interior, and proved to be one of the most agreeable of our experiences.

CHAPTER X.

THE TRIP TO WAHPOOSKOW.

OUR route lay first up the Pelican River, the Chachákew of the Crees, and then from the "divide" down the Wahpooskow watershed to the lake. We had six canoemen, and our journey began by "packing" our outfit over a four-mile portage, commencing with a tremendously long and steep hill, and ending on a beautiful bank of the Pelican, a fine brown stream about one hundred feet wide, where we found our canoes awaiting us, capital "Peterbroughs," in good order. Here also were a number of bark canoes, carrying the outfit of Mr. Ladoucere, a half-breed trader going up to Wahpooskow. Mr. Prudhomme and myself occupied one canoe, and with two experienced canoemen, Auger at the stern and Cardinal at the bow, we kept well up with the procession.

Where the channels are shallow, poles are used, which the men handled very dexterously, nicking in and out amongst the rocks and rapids in the neatest way; but in the main the propulsion was by our paddles, a delight to me, having been bred to canoeing from boyhood. We stopped for luncheon at a lovely "place of trees" overhanging a deep, dark, alluring pool, where we knew there were fish, but had no time to make a cast. So far the banks of the Pelican were of a moderate height, and the adjacent country evidently dry—a good soil, and berries very plentiful. Presently, between banks overhung with long grass, birch and alder, we entered a succession of the sweetest little rapids and riffles imaginable, the brown water dancing amongst the



R N W M Police Post at Grand Rapids of the Athabasca



A typical half-breed fireplace and chimney
at Wapoosek—cabin removed



The lady Klondiker
(See page 118)



stones and boulders to its own music, and the rich rose-pink, cone-like tops of the water-vervain, now in bloom, dancing with it.

Our camp that night was a delightful one, amongst slender birch and spruce and pine, the ground covered with blueberries, partridge berries, and cranberries in abundance. The berries of the wolf-willow were also red-ripe, alluring, but bitter to the taste. It was really a romantic scene. Ladoucere had made his camp in a small glade opposite our own, the bend of the river being in front of us. The tall pines cast their long reflections on the water, our great fires gleamed athwart them, illuminating the under foliage of the birches with magical light, whilst the half-breeds, grouped around and silhouetted by the fires, formed a unique picture which lingers in the memory. We slept like tops that night beneath the stars, on a soft bed of berry bushes, and never woke until a thin morning rain sprinkling in our faces fetched us to our feet.

A good bacon breakfast and then to our paddles, the river bends as graceful as ever, but with fewer rapids. At every turn we came upon luxuriant hay meadows, with generally heavy woods opposite them, the river showing the same easy and accessible shore, whilst now and then giant hoof-prints, a broken marge, and miry grass showed where a moose had recently sprawled up the bank. Nothing, indeed, could surpass the rich colour-tone of this delightful stream—an exquisite opaqueness even under the clouds; but, interfused with sunshine, like that rare and translucent brown spread by the pencil of a master.

As we were paddling along, the willows on shore suddenly parted, and an Indian runner appeared on the bank, who hailed us and, handing over a sack of mail with letters and papers for us all, sped off as suddenly as he came.

It was now the last day of August, raw and drizzly, and having paddled about ten miles through a like country, we came in sight of the Pelican Mountains to the west, and, later

on, to a fork of the river called Muskeg Creek, above which our stream narrowed to about eighteen feet, but still deep and fringed with the same extensive hay meadows, and covered here and there with pond lilies, a few yellow ones still in bloom. By and by we reached Muskeg Portage, nearly a mile in length. The path lay at first through dry muskegs covered with blueberries, Labrador tea, and a dwarfed growth of birch, spruce, tamarac, and jackpine, but presently entered and ended in a fine upland wood, full of pea-vines, vetches and wild rose. This is characteristic of the country, muskegs and areas of rich soil alternating in all directions. The portage completed, we took to our canoes again, the stream of the same width, but very crooked, and still bordered by extensive and exceedingly rich hay meadows, which we were satisfied would yield four or five tons to the acre. Small haystacks were scattered along the route, being put up for ponies which haul supplies in winter from Pelican Landing to Wahpoóskow.

The country passed through showed good soil wherever we penetrated the hay margin, with, of course, here and there the customary muskegs. The stream now narrowed into a passage deep but barely wide enough for our canoes, our course lying always through tall and luxuriant hay. At last we reached Pelican Lake, a pretty large sheet of water, about three miles across, the body of the lake extending to the south-west and north-east. We crossed it under sail and, landing at the "three mile portage," found a half-breed there with a cart and ponies, which took our outfit over in a couple of trips to Sandy Lake. A very strong headwind blowing, we camped there for the night.

This lake is the height of land, its waters discharging by the Wahpoóskow River, whose northern part, miscalled the Loon, falls into the Peace River below Fort Vermilion. The lake is an almost perfect circle, ten or twelve miles in diameter, the water full of fibrous growths, with patches of green scum afloat all over it. Nevertheless, it abounds in

pike, dory, and tullabees, the latter a close congener of the whitefish, but finer in flavour and very fat. Indeed, the best fed dogs we had seen were those summering here. The lake, where we struck it, was literally covered with pin-tail ducks and teal; but it is not a good moose country, and consequently the food supply of the natives is mainly fish.

We descried a few half-breed cabins and clearings on the opposite shore, carved out of the dense forest which girdles the lake, and topographically the country seemed to be of a moderate elevation, and well suited for settlement. The wind having gone down, we crossed the lake on the 2nd of September to what is here called Sandy Creek, a very crooked stream, its thick, sluggish current bordered by willows and encumbered with reeds and flags, and, farther on, made a two-mile portage, where at a very bad landing we were joined by the boats, and presently paddled into a great circular pond, covered with float-weed, a very paradise of ducks, which were here in myriads.

Its continuation, called "The Narrows," now flowed in a troubled channel, crossed in all directions by jutting boulders, full of tortuous snies, to be groped along dexterously with the poles, but dropped at last into better water, ending at a portage, where we dined. This portage led to the farmhouse of a Mr. Houle, a native of Red River, who had left St. Vital fifty-eight years before, and was now settled at a beautiful spot on the right bank of the river, and had horses, cows and other cattle, a garden, and raised wheat and other grain, which he said did well, and was evidently prosperous. After a regale of milk we embarked for the first Wahpooskow lake, which we reached in the afternoon.

This is a fine and comparatively clear sheet of water, much frequented by the natives. The day was beautiful, and with a fair wind and sails up we passed point after point sprinkled with the cabins and tepees of the Indians and half-breeds. It was perfectly charming to sweep up to and past these primitive lodgings, with a spanking breeze, and the dancing

waves seething around our bows. Small patches of potatoes met the eye at every house, making our mouths water with expectation, for we had now been a long time without them, and it is only then that one realizes their value. In the far distance we discerned the Roman Catholic Mission church, the primitive building showing up boldly in the offing, whilst our canoemen, now nearing their own home, broke into an Indian chant, and were in high spirits. They expected a big feast that night, and so did we! I had been a bit under the weather, with flagging appetite, but felt again the grip of healthy hunger.

We were now in close contact with the most innocently wild, secluded, and apparently happy state of things imaginable—a real Utopia, such as Sir Thomas More dreamt not of, being actually here, with no trace of abortive politics or irritating ordinance. Here was contentment in the savage wilderness—communion with Nature in all her unstained purity and beauty. One thought of the many men of mind who had moralized on this primitive life, and, tired of towns, of “the weariness, the fever and the fret” of civilization, had abandoned all and found rest and peace in the bosom of Mother Nature.

The lake now narrowed into a deep but crooked stream, fringed, as usual, by tall reeds and rushes and clumps of flowering water-lilies. A four-mile paddle brought us to a long stretch of deep lake, the second Wahpoóskow, lined on the north by a lovely shore, dotted with cabins, the central tall buildings upon the summit of the rising ground being those of the English “Church Mission Society,” in charge of the Reverend Charles R. Weaver. Here we were at last at the inland end of our journey, at Wahpoóskow—this, not the “Wabiscow” of the maps, being the right spelling and pronunciation of the word, which means in English “The Grassy Narrows.”

The other Missions of this venerable Society in Athabasca, it may be mentioned, were at the time as follows: Athabasca

Landing, the residence of Bishop Young; Lesser Slave Lake, White Fish Lake, Smoky River, Spirit River, Fort Vermilion, and Fort Chipewyan, in charge, respectively, of the Reverend Messrs. Holmes, White, Currie, Robinson, Scott, and Warwick. The Roman Catholic Mission, already mentioned, had been established three years before our coming by the Reverend J. B. Giroux, at Stony Point, near the outlet of the first lake, the other Oblat Missions in Athabasca—I do not vouch for my accuracy—being Athabasca Landing, Lesser Slave Lake, the residence of Bishop Clût and clergy and of the Sisters of Providence; White Fish Lake, Smoky River, Dunvegan, and St. John, served, respectively, by Fathers Leferriere, Lesserec, and Letreste; Fort Vermilion by Father Joussard, and Fort Chipewyan by Bishop Grouard and the Grey Nuns.

Mr. Weaver, the missionary at Wahpooskôw, is an Englishman, his wife being a Canadian from London, Ontario. By untiring labour he had got his mission into very creditable shape. When it is remembered that everything had to be brought in by bark canoes or dog-train, and that all lumber had to be cut by hand, it seemed to be a monument of industry. Before qualifying himself for missionary work he had studied farming in Ontario, and the results of his knowledge were manifest in his poultry, pigs and cows; in his garden, full of all the most useful vegetables, including Indian corn, and his wheat, which was then in stook, perfectly ripe and untouched by frost. This he fed, of course, to his pigs and poultry, as it could not be ground; but it ripened, he told me, as surely as in Manitoba. Some of the natives roundabout had begun raising stock and doing a little grain growing, and it was pleasant to hear the lowing of cattle and the music of the cow-bells, recalling home and the kindly neighbourhood of husbandry and farm.

The settlement was then some twenty years old, and numbered about sixty souls. The total number of Indians and half-breeds in the locality was unknown, but nearly two hun-

dred Indians received head-money, and all were not paid, and the half-breeds seemed quite as numerous. About a quarter of the whole number of Indians were said to be pagans, and the remainder Protestants and Roman Catholics in fair proportion. In the latter denomination, Father Giroux told me, the proportion of Indians and half-breeds, including those of the first lake, was about equal. The latter, he said, raised potatoes, but little else, and lived like the Indians, by fishing and hunting, especially by the former, as they had to go far now for fur and large game.

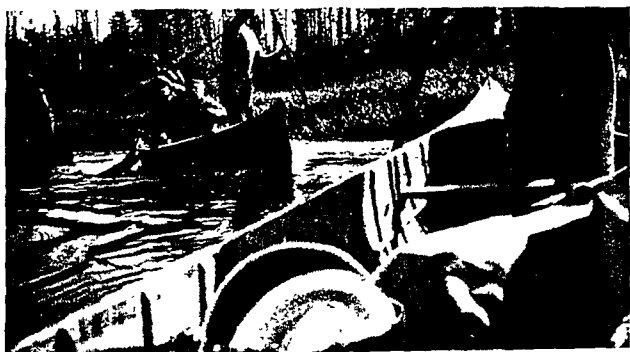
The Hudson's Bay Company had built a post near Mr. Weaver's Mission, and there was a free-trader also close by, named Johnston, whose brother, a fine-looking native missionary, assisted at an interesting service we attended in the Mission church, conducted in Cree and English, the voices in the Cree hymns being very soft and sweet. Mr. Ladoucere was also near with his trading-stock, so that business, it was feared, would be overdone. But we issued an unexpectedly large number of scrip certificates here, and the price being run up by competition, a great deal of trade followed.

Wahpooškow is certainly a wonderful region for fish, particularly the whitefish and its cousin-german, the tullabee. They are not got freely in winter in the first lake, but are taken in large numbers in the second, where they throng at that season. But in the fall the take is very great in both lakes, and stages were seen in all directions where the fish are hung up by their tails, very tempting to the hungry dogs, but beyond their reach until the crows attack them. The former keep a watchful eye on this process, and when the crows have eaten off the tails, which they invariably attack first, the dogs seize the fish as they drop. When this performance becomes serious, however, the fish are generally removed to stores.

One night, after an excellent dinner at Mr. Weaver's, that grateful rarity with us, we adjourned to a ball or "break-



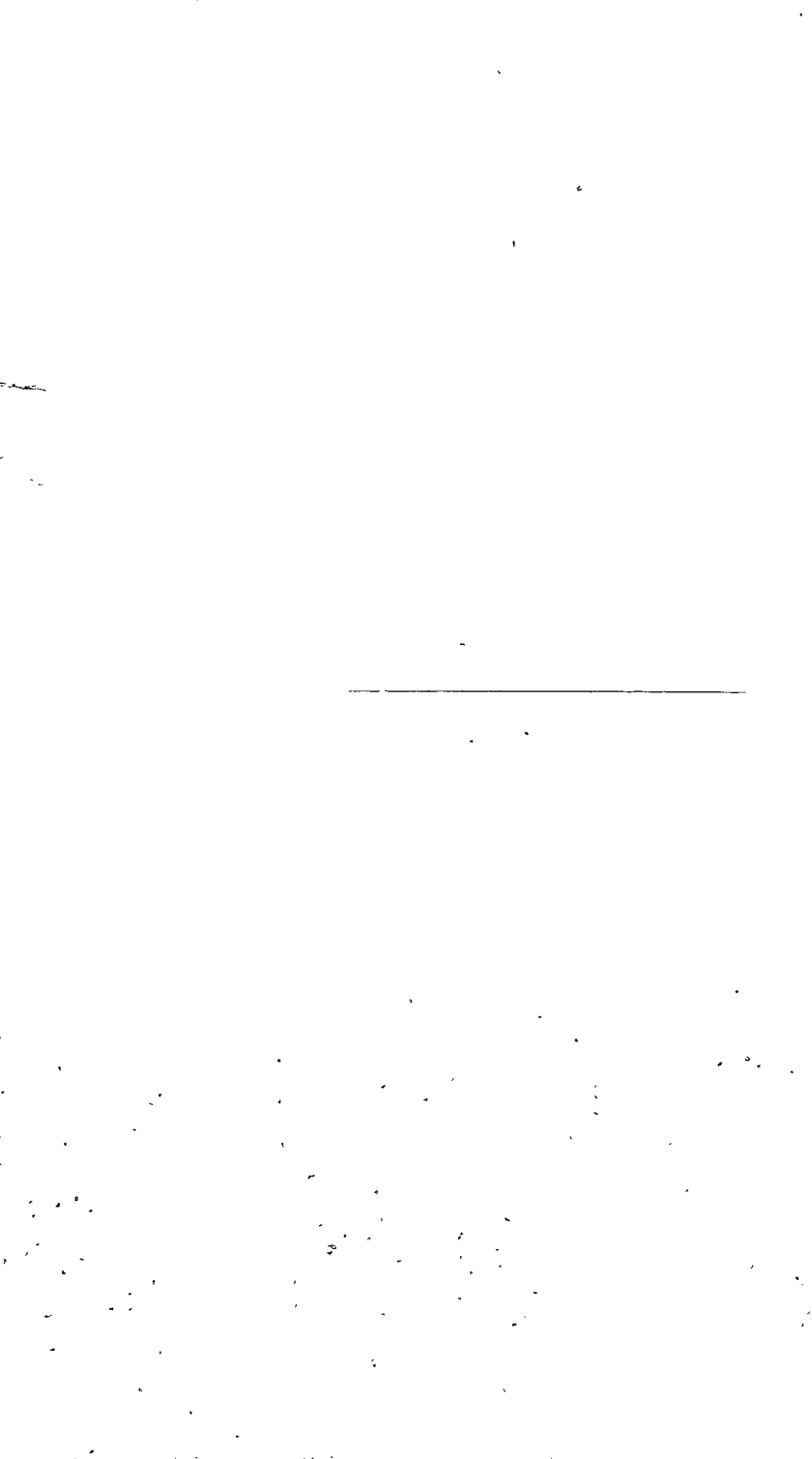
Canoeing on the Pelican River



Ascending the Chachakew (Pelican River)



Half-breed family drying whitefish at Wahpooskow Lake



down," given in our honour by the local community. It took place in a building put up by a Mr. George, an English catechist of the Mission; a solid structure of logs of some length, the roof poles being visible above the peeled beams. On one of these five or six candles were alight, fastened to it by simply sticking them into some melted tallow. There were two fiddlers and a crowd of half-breeds, of elders, youths, girls and matrons, the latter squatting on the floor with their babes in moss-bags, dividing the delights of the evening between nursing and dancing, both of which were conducted with the utmost propriety. Indeed, it was interesting to see so many pretty women and well-behaved men brought together in this out-of-the-world place. The dances were the customary reels, and, of course, the Red River Jig. I was sorry, however, to notice a so-called improvement upon this historic dance; that is to say, they doubled the numbers engaged in it, and called it "The Wahpooškow Jig." It seemed a dangerous innovation; and the introduction later on of a cotillon with the usual dreary and mechanical calls filled one with additional forebodings. We almost heard "the first low wash of waves where soon shall flow a human sea." But aside from such newfangled features, there was nothing to criticise. The fiddling was good, and the dancing was good, showing the usual expertness, in which performance the women stooped their shoulders gracefully, and bent their brows modestly upon the floor, whilst the men vied with each other in the admirable and complicated variety of their steps. In fact, it was an evening very agreeably spent, and not the less so from its primitive environment. After joining in a reel of eight, we left the scene with reluctance, the memorable Jig suddenly striking on our ears as we wended our way in the darkness to our camp.

As regards farming land in the region, for a long way inland Mr. Weaver and others described it as of the like good quality as at the Mission, but with much muskeg. It is difficult to estimate the extent of the latter, for, being

more noticeable than good land, the tendency is to overestimate. Its proportion to arable land is generally put at about 50 per cent., which may be over or under the truth, for only actual township or topographic surveys can determine it.

The country drained by the lower river, the Loon, as it is improperly called in our maps, navigable for canoes all the way to where it enters the Peace, was described as an extensive and very uniform plateau, sloping gently to the north. To the south the Pelican Mountains formed a noble background to the view from the Mission, which is indeed charming in all directions.

At the mouth of the river, and facing the Mission, a long point stretches out, dividing the lake into two deep arms, the Mission being situated upon another point around which the lake sweeps to the north. The scene recalls the view from the Hudson's Bay Company's post at Lesser Slave Lake, but excels it in the larger extent of water, broken into by scores of bayous, or pools, bordered by an intensely green water-weed of uniform height, and smooth-topped as a well-clipt lawn. Behind these are hay meadows, a continuation of the long line of them we had passed coming up.

Upon the whole, we considered this an inviting region for any farmer who is not afraid to tackle the forest. But whether a railway would pass this way at first seemed to us doubtful. The head of Lesser Slave Lake lies far to the south-west, and there it is most likely to pass on its way to the Peace. What could be supplied, however, is a waggon-road from Wahpooškow to Athabasca Landing, instead of the present dog-trail, which passes many deep ravines, and makes a long detour by Sandy Lake. Such a road should pass by the east end of the first Wahpooškow Lake, thence to Rock Island Lake, and on by Calling Lake to the Landing, a distance of about one hundred miles. Such a road, whilst saving 125 miles of travel by the present route, would cut down the cost of transport by fully one-half.

Wahpooskow had its superstitions and some doubtful customs. For instance, an Indian called Nepapinase—"A Wandering Bolt of Night-Lightning"—lost his son when Mr. Ross was there taking adhesion to the Treaty, and spread the report that he had brought "bad medicine." Polygamy was practised, and even polyandry was said to exist; but we had no time to verify this gossip, and no right to interfere if we had.

On the 6th, a lovely fall morning, we bade good-bye to Wahpooskow, its primitive people, and its simple but ample pleasures. Autumn was upon us. Foliage, excepting in the deep woods, was changing fast, the hues largely copper and russet; hard body-tints, yet beautiful. There were no maples here, as in the East, to add a glorious crimson to the scene; this was given by shrubs, not by trees. The tints were certainly, in the larger growths, less delicate here than there; the poplar's chrome was darker, the willow's mottled chrome more sere. But there was the exquisite pale canary of the birch, the blood-red and yellow of the wild rose, which glows in both hues, the rich crimson of the red willow, with its foil of ivory berries, and the ruddy copper of the high-bush cranberry. These, with many other of the berry bearers and the wild-flowers, yielded their rich hues; so that the great pigments of autumn, crimson, brown and yellow, were everywhere to be seen, beneath a deep blue sky strewn with snowy clouds.

We were now on the return to Pelican Landing, with but few incidents to note by the way, aside from those already recorded. But having occasion to take a declaration at a cabin on our passage along the first lake, we had an opportunity of visiting a hitherto unobserved stratum of Wahpooskow's society.

The path to the cabin and its tepees led up a steep bank, beaten as hard as nails and as slippery as glass; nevertheless, by clutching the weeds which bordered it, mainly nettles, we got on top at last, where an interesting scene met the eye.

This was a half-breed family, the head of which, a shrivelled old fellow, was busy making a paddle with his crooked knife, the materials of a birch-bark canoe lying beside him—and most beautifully they make the canoe in this region. His wife was standing close by, a smudged hag of most sinister aspect; also a son and his wife. On stages, and on the shrubs around, were strewn nets, ragged blankets, frowsy shawls, and a huddle of other shreds and patches; and, everywhere else, a horde of hungry dogs snarling and pouncing upon each other like wolves. Filth here was supreme, and the *mise en scene* characteristic of a very low and very rare type of Wahpoóskow life indeed—a type butted and bounded by the word “fish.” An attempt was made to photograph the group, but the old fellow turned aside, and the old woman hobbled into the recesses of a tepee, where we heard her muttering such execrations in Cree as were possible to that innocent tongue. The hands of the woman at the cabin door were a miracle of grime and scrofula. Her sluttish locks, together with two children, hung around her; one of the latter chewing a muddy carrot up into the leaves, an ungainly little imp; the other was a girl of singularly beautiful features and of perfect form, her large luminous eyes of richest brown reflecting the sunlight from their depths like mirrors—a little angel clad in dirt. Why other wild things should be delicately clean, the birds, the fishes she lived on, and she be bred amidst running sores and vermin, was one of the mysteries I pondered over when we took to our canoes. For such a pair of eyes, for those exquisite features, some scraggy denizen of Vanity Fair would have given a king's ransom. Yet here was a thing of beauty, dropped by a vile freak of Nature into an appalling environment of filth and ignorance; a creature destined, no doubt, to spring into mature womanhood, and lapse, in time, into a counterpart of the bleared Hecate who mumbled her Cree philippics in the neighbouring wigwam.

On our return trip some detours were made, one of which

was to the habitation of another half-breed family at the foot of Sandy Lake, themselves and everything about them orderly, clean and neat; the very opposites of the curious household we had visited the day before. They had a great kettle of fish on the fire, which we bought, and had our dinner there; being especially pleased to note that their dogs were not starved, but were fat and well handled. At the east side of the lake we were delayed trying to catch ponies to make the portage, failing which we got over otherwise by dark, and camped again on the Pelican River. That night there was a keen frost, and ice formed along shore, but the weather was delightfully crisp and clear, and we reached Pelican Landing on the 9th, finding there our old scow and the trackers, with our friend Cyr in command, and Marchand, our congenial cook, awaiting us.

On the 11th we set off for Athabasca Landing, accompanied by a little fleet of trippers' and traders' canoes, and passed during the day immense banks of shale, the tracking being very bad and the water still high. We noted much good timber standing on heavy soil, and on the 14th passed a curious hump-like hill, cut-faced, with a reddish and yellow cinder-like look, as if it had been calcined by underlying fires. Near it was an exposure of deep coloured ochre, and, farther on, enormous black cut-banks, also suggestive of coal.

The Calling River—"Kitoósepe"—was one of our points of distribution, and upon reaching it we found the river benches covered with tepees, and a crowd of half-breeds from Calling Lake awaiting us. After the declarations and scrip payments were concluded, we took stock of the surroundings, which consisted, so far as numbers went, mainly of dogs. Nearly all of them looked very miserable, and one starveling bitch, with a litter of pups, seemed to live upon air. It was pitiful to see the forlorn brutes so cruelly abused; but it has been the fate of this poor mongrel friend of humanity from the first. The canine gentry fare better than many a man, but the outcasts of the slums and camps feel the stroke

of bitter fortune, yet, with prodigious heart, never cease to love the oppressor.

There was an adjunct of the half-breed camp, however, more interesting than the dogs, namely, Marie Rose Gladu, a half-sister of the Catherine Bisson we met at Lesser Slave Lake, but who declared herself to be older than she by five years. From evidence received she proved to be very old, certainly over a hundred, and perhaps the oldest woman in Northern Canada. She was born at Lesser Slave Lake, and remembered the wars of her people with the Blackfeet, and the "dancing" of captured scalps. She remembered the buffalo as plentiful at Calling Lake; that it was then a mixed country, and that their supplies in those old days were brought in by way of Isle a la Cross, Beaver River, and Lac la Biche, as well as by Methy Portage, a statement which I have heard disputed, but which is quite credible for all that. She remembered the old fort at the south-east end of Lesser Slave Lake, and Waupistagwon, "The White Head," as she called him, namely, Mr. Shaw of the famous finger-nail. Her father, whose name was Nekehwapiskun—"My wigwam is white"—was a fur company's Chief, and, in his youth, a noted hunter of Rabisca (Chipewyan), whence he came to Lesser Slave Lake. Her own Cree name, unmusical for a wonder, was Ochenaskumagan—"Having passed many Birthdays." Her hair was gray and black rather than iron-gray, her eyes gunkun but bright, her nose well formed, her mouth unshrunk but rather projecting, her cheeks and brow a mass of wrinkles, and her hands, strange to say, not shrivelled, but soft and delicate as a girl's. The body, however, was nothing but bones and integument; but, unlike her half-sister, she could walk without assistance. After our long talk through an interpreter she readily consented to be photographed with me, and, seating ourselves on the grass together, she grasped my hand and disposed herself in a jaunty way so as to look her very best. Indeed, she must have been a pretty girl in her youth, and, old as she was, had some of the arts of girlhood in her yet.



The persons seated are Marie Rose Gladu (Ochenaskumagan) and the Author



At this point the issue of certificates for scrip practically ended, the total number distributed being 1,843, only 48 of which were for land.

Leaving Calling River before noon, we passed Riviere la Biche towards evening, and camped about four miles above it on the same side of the river. We were not far from the Landing, and therefore near the end of our long and toilsome yet delightful journey. It was pleasant and unexpected, too, to find our last camp but one amongst the best. The ground was a flat lying against the river, wooded with stately spruce and birch, and perfectly clear of underbrush. It was covered with a plentiful growth of a curious fern-like plant which fell at a touch. The great river flowed in front, and an almost full moon shone divinely across it, and sent shafts of sidelong light into the forest. The huge camp-fires of the trackers and canoemen, the roughly garbed groups around them, the canoes themselves, the whole scene, in fact, recalled some *genre* sketch by our half-forgotten colourist, Jacobi. Our own fire was made at the foot of a giant spruce, and must have been a surprise to that beautiful creature, evidently brimful of life. Indeed, I watched the flames busy at its base with a feeling of pain, for it is difficult not to believe that those grand productions of Nature, highly organized after their kind, have their own sensations, and enjoy life.

The 17th fell on a Sunday, a delicious morning of mist and sunshine and calm, befitting the day. But we were eager for letters from home, and therefore determined to push on. Perhaps it was less desecrating to travel on such a morning than to lie in camp. One felt the penetrating power of Nature more deeply than in the apathy or indolent ease of a Sunday lounge. Still there were those who had to smart for it—the trackers. But the Mecca of the Landing being so near, and its stimulating delights looming largely in the haze of their imagination, they were as eager to go on as ourselves.

The left bank of the river now exhibited, for a long distance, a wilderness swept by fire, but covered with "ram-pikes" and fallen timber. The other side seemed to have partially escaped destruction. The tracking was good, and we passed the "Twenty Mile Rock" before dinner, camping about fifteen miles from the Landing. Next morning we passed through a like burnt country on both sides, giving the region a desolate and forlorn look, which placed it in sinister contrast with the same river to the north.

Farther up, the right bank rose bare to the sky-line with a mere sprinkling of small aspens, indicating what the appearance of the "rampike" country would be if again set ablaze, and converted from a burnt-wood region to a bare one. The banks revealed a clay soil, in some places mixed with boulders, but evidently there was good land lying back from the river.

In the morning bets were made as to the hour of arrival at the Landing. Mr. P. said four p.m., the writer five, the Major six, and Mr. C. eight. At three p.m. we rounded the last point but one, and reached the wharf at six-thirty, the Major taking the pool.

We had now nothing before us but the journey to Edmonton. At night a couple of dances took place in adjacent boarding-houses, which banished sleep until a great uproar arose, ending in the partisans of one house cleaning out the occupants of the other, thus reducing things to silence. We knew then that we had returned to earth. We had dropped, as it were, from another planet, and would soon, too soon, be treading the flinty city streets, and, divorced from Nature, become once more the bond-slaves of civilization.

CONCLUSION.

I HAVE thought it most convenient to the reader to unite with the text, as it passes in description from place to place, what knowledge of the agricultural and other resources of the country was obtainable at the time. The reader is probably weary of description by this time; but, should he make a similar journey, I am convinced he would not weary of the reality. Travellers, however, differ strangely in perception. Some are observers, with imagination to brighten and judgment to weigh, and, if need be, correct, first impressions; whilst others, with vacant eye, or out of harmony with novel and perhaps irksome surroundings, see, or profess to see, nothing. The readiness, for instance, of the Eastern "fling" at Western Canada thirty years ago is still remembered, and it is easy to transfer it to the North.

Those who lament the meagreness of our records of the fur-trade and primitive social life in Ontario, for example, before the advent of the U. E. Loyalists, can find their almost exact counterpart in Athabasca to-day. For what that Province was then, viz., a wilderness, Athabasca is now; and it is safe to predict that what Ontario is to-day Athabasca will become in time. Indeed, Northern Canada is the analogue of Eastern Canada in more likenesses than one.

That the country is great and possessed of almost unique resources is beyond doubt; but that it has serious drawbacks, particularly in its lack of railway connection with the outer world, is also true. And one thing must be borne in mind, namely, that, when the limited areas of prairie within its borders are taken up, the settler must face the forest with the axe.

Perhaps he will be none the worse for this. It bred in the pioneers of our old provinces some of the highest qualities: courage, iron endurance, self-denial, homely and upright life, and, above all, for it includes all, true and ennobling patriotism. The survival of such qualities has been manifest in multitudes of their sons, who, remembering the record, have borne themselves manfully wherever they have gone.

But modern conditions are breeding methods new and strange, and keen observers profess to discern in our swift development the decay of certain things essential to our welfare. We seem, they think, to be borrowing from others—for they are not ours by inheritance—their boastful spirit, extravagance, and love of luxury, fatal to any State through the consequent decline of morality. The picture is overdrawn. True womanhood and clean life are still the keynotes of the great majority of Canadian homes.

Yet very striking is the contrast with the old days of household economies, the days of the ox-chain, the sickle, and the leach-tub. All of these, some happily and some unhappily, have been swept away by the besom of Progress. But in any case life was too serious in those days for effeminate luxury, or for aught but proper pride in defending the country, and in work well done. And it is just this stern life which must be lived, sooner or later, not only in the wilds of Athabasca, but in facing everywhere the great problems of race-stability—the spectres of retribution—which are rapidly rising upon the white man's horizon.

For the rest, and granting the manhood, the future of Athabasca is more assured than that of Manitoba seemed to be to the doubters of thirty years ago. In a word, there is fruitful land there, and a bracing climate fit for industrial man, and therefore its settlement is certain. It will take time. Vast forests must be cleared, and not, perhaps, until railways are built will that day dawn upon Athabasca. Yet it will come; and it is well to know that, when it does, there is ample room for the immigrant in the regions described.

The generation is already born, perhaps grown, which will recast a famous journalist's emphatic phrase, and cry, "Go North!" Well, we came thence! Our savage ancestors, peradventure, migrated from the immemorial East, and, in skins and breech-clouts, rocked the cradle of a supreme race in Scandinavian snows. It has travelled far to the enervating South since then; and, to preserve its hardihood and sway on this continent, must be recreated in the high latitudes which gave it birth.



NOTES ON MAMMALS

Collected and Observed in the Northern Mackenzie River
District, North-West Territories of Canada

WITH

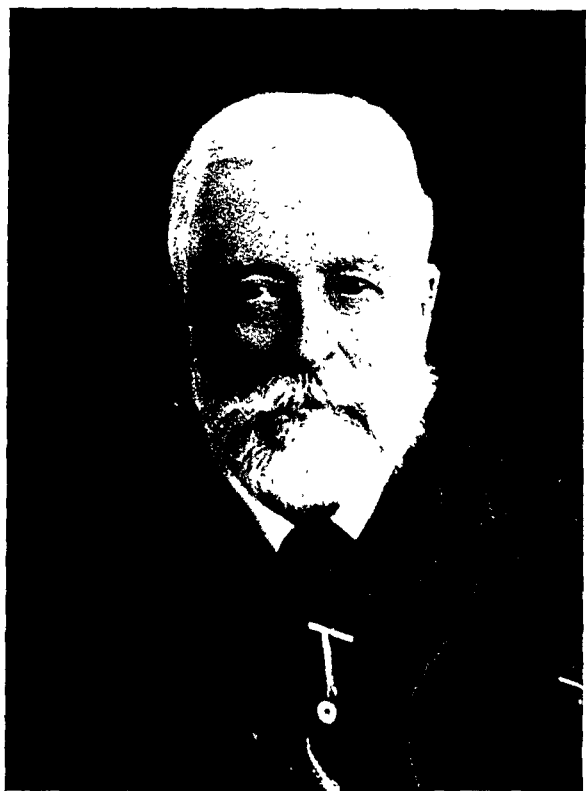
REMARKS ON EXPLORERS AND EXPLORATIONS
OF THE FAR NORTH

BY

R. MacFARLANE

Retired Chief Factor, Hudson's Bay Company





RODERICK MACFARLANE

PREFATORY

Recently meeting an old friend, in the person of Mr. Charles Mair, of Lethbridge, I was informed by him that he was shortly bringing out what I believe will prove an interesting narrative of the Athabasca and Mackenzie River Native Treaty Expedition of 1899. After some conversation on the subject, we concluded that certain published Notes of mine on the Birds and Mammals, incorporated therewith, might probably have the effect of inciting the ambition of some Canadians in emulating the good example set them by many of the officers of the Hudson's Bay Company and others in the way of making similar exertions on similar lines, and thus contributing to the Natural History of their great Dominion. We also hoped that the Federal Government might be induced to do all that was possible to encourage this laudable course, which, if followed by the Ministerial Executive of the several Provinces, would certainly go far in this very desirable direction. The National Museum at the Capital is without doubt a credit to the authorities, but if the people wish to own such an institution as they might and ought to have, then every effort should be put forth in order to secure, first, the filling up of the many gaps in the catalogues of well-known species, which are still unrepresented therein; and, next, the continuation of the good work, for the reason that very much will have to be accomplished before our Canadian Fauna becomes satisfactorily, far less exhaustively ascertained, and the result of future explorations duly communicated to the scientific world.

These Notes were originally intended, as already indicated, as a continuation addition to the Paper of 1891 on

Arctic Birds, but the new change of plan has, of course, necessitated the publication herein of a certain number of referred-to excluded birds and eggs collected at Fort Anderson. With the view, too, of adding somewhat to the general interest, especially for the benefit of field collectors and other naturalists, more copious nesting and relative details have also been introduced. Should time and some requisitely important means, at present unavailable, later on permit it, I may possibly attempt to give a fuller idea of the magnificent contributions to the Natural History of Canada obtained by and under the auspices of the officers of the Hudson's Bay Company throughout the vast territories covered by the fur trade and commercial operations of that ancient concern.

Among those of their number who happened to be stationed—and of whose works, in some instances, I have been able to make but very few and brief references to on this occasion—in the Mackenzie River district, and who rendered very essential service, may be mentioned: Chief Factors William L. Hardisty, Lawrence Clarke, J. S. Camsell, James McDougall; Chief Traders B. R. Ross, James Lockhart, William J. McLéan, Charles P. Gaudet, William C. King, John Reid, and Messrs. Alexander McKenzie, Murdo McLeod, James Flett, Andrew Flett, William Brass, Strachan Jones and James Sibbiston. All of these gentlemen's collections were exclusive of those made by me at Fort Anderson, and were forwarded direct to Washington.

R. MACFARLANE.

Winnipeg, May 15th, 1908.

Notes on Mammals

Among the reasons which led me to prepare this list and relative notes, together with the paper on the birds and eggs collected by me and under my direction in Arctic America, recently published by the Historical and Scientific Society of Manitoba, and by the U.S. National Museum at Washington,* the following may be mentioned: First, I desired thus to set an example to the fur-trade officers of the Hudson's Bay Company, which some of them could well follow, to furnish similar experiences of their own. Secondly, I further desired to incite the ambition of others, especially the younger men of the service, stationed at posts on the Gulf of St. Lawrence, on the sea-coasts of Labrador, Hudson Bay, and the North Pacific, amid the fertile prairies and great forests, and on the banks of numerous rivers and lakes of the vast interior of Old and New Canada, to resume and continue making important additions to the Company's officers' well-known interesting contributions to the natural history of their former chartered, licensed, and still occupied trade territories. Thirdly, I wished that the Smithsonian Institution might appoint an agent for the purpose of personally reviving the grand work begun by Robert Kennicott, in 1859, and afterwards followed by others, under the auspices of the lamented Spencer Fullerton Baird. Lastly, but not least, I trust that both papers may eventually aid in arousing the naturalists of Canada to exert themselves more fully than ever, not only in the way of ascertaining the

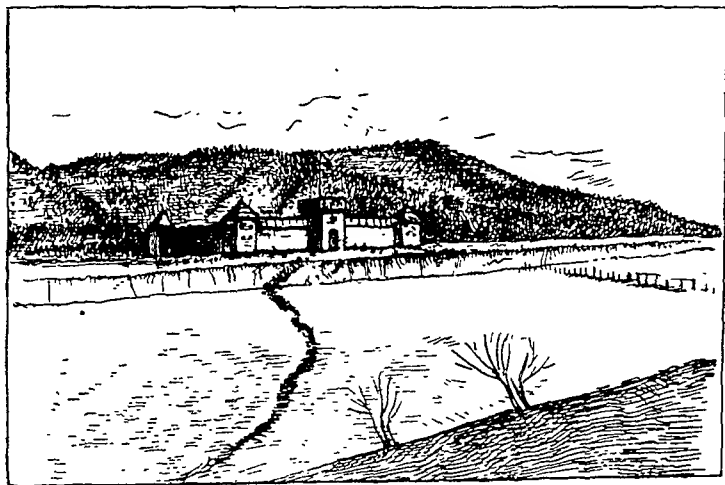
* Proceedings United States National Museum, XIV, 1892, pp. 413-446.

existence of new species and the geographical distribution of others, but also in obtaining specimens to fill up the many gaps in the catalogues of well-known animals which are still unrepresented in their national museums.

In its immense Northwest Territories, situated on both sides of the Rocky Mountains, and in the wilds of Quebec, Ontario, Labrador, and Hudson Bay, but especially in the "Great Mackenzie Basin," the Dominion of Canada presents an indubitably rich and varied field for scientific investigation. For many years to come there should be ample room within its continental boundaries (without reference to the important outlying Arctic islands and lands which extend almost to the North Pole) not only for her own and other British explorers, but also for like-minded brother-workers from the great neighbouring Republic, to make large and valuable acquisitions in all branches of natural history; and if the former would only take hold of this interesting and fascinating subject with characteristic zeal, energy, and perseverance there can be little doubt that before the close of the second decade of the century our great Dominion would find itself in possession of a collection of Canadian objects and species worthy of the country, and in some at least, if not in most, departments of science, second to none in either hemisphere.

The scope of country embraced by the following Notes is, in the main, the same northern section of the Mackenzie River District referred to in the aforesaid paper on Arctic birds and eggs. It is bounded on the north by the Polar Sea, to the outlet of the Mackenzie River; on the east, by the coast of Franklin Bay, from Cape Bathurst to its depth in Langton Harbour; on the west, by the Lower Mackenzie River; and, on the south, by the sixty-seventh parallel of north latitude to its intersection with longitude 124° west. The period during which the collections herein mentioned were made extended from the beginning of the year 1861 to the end of July, 1866. Fort Anderson (about

latitude $68^{\circ} 30'$ north, and longitude 128° west) was the principal point of investigation. It was situated on the right bank of the Anderson River, first visited by me in 1857. The Anderson River, which disembogues itself into



FORT ANDERSON.

* In the month of March, 1865, the Reverend Emile Petitot, at that time Père of the Order of Mary Immaculate of the Good Hope, Mackenzie River Roman Catholic Mission, paid a visit to Fort Anderson, and while there made an excellent winter sketch (subsequently painted in water colours) of the establishment. I forwarded the latter to the Smithsonian Institution at Washington and Professor Baird had it reproduced in, I think, Frank Leslie's Weekly (1865 or 1867), with some relative information. It was on a much larger scale than this sketch copied from Abbé Petitot's "Les Grands Esquimaux."

The spruce poles seen in the sketch, with their attached branches, and sunk to the bottom of the river through holes made in the ice soon after it set fast, formed a barrier from bank to bank, with an open space near the centre, in which a net was placed, and by means of which quite a large number of whitefish and other fish were annually secured in course of the two or three weeks "run." The other marking on the ice is that of a dog meat-hauling and Indian winter track to the country lying across the Anderson River to the west of the fort.

Liverpool Bay, latitude 70° north, has its sources in the Reverend Abbé Petitot's "Ti-Degale" (Frost-hardened Mountain), lying at some "little distance" to the north of Great Bear Lake. For this exploration and the recovery in June, 1862, of the dispatches delivered to the Eskimos by Capt. Robert McClure, of Her Majesty's Arctic search-expedition ship *Investigator*, when off Cape Bathurst in the month of August, 1850, for transmission to England by way of Fort Good Hope and other Hudson's Bay posts, the British Admiralty (through the good offices of Lord Strathcona and Mount Royal, G.C.M.G.) were recently pleased to award me the Queen's Arctic medal. When Sir Leopold McClintock returned to England from his expedition of 1857-1859, which ascertained the fate of Sir John Franklin and his companions, an octagonal form of the medal was struck for presentation to several of his officers and crew who had not received the round service medal of 1818-1855 previous to the latter date.

Although these Notes chiefly relate to the collections made by the writer within the above-defined region, and at two or three other points, yet many incidental references were deemed necessary in respect to northern mammals obtained and observed by officers of the Hudson's Bay Company and others in the Mackenzie River District and elsewhere. It was also considered advisable to refer to similar work performed by officers of some of the British Government's Arctic exploring and search expeditions which wintered in Dominion Polar Sea lands. Brief extracts have also been made from Gen. A. W. Greely's "Three Years of Arctic Service," and from other land and water exploring publications, while the explanatory remarks, called for under each species of animal entered in the Company's catalogues of their annual London fur sales, practically include every noticeable vantage point of observation throughout the vast domain in which their trade and commercial business has been conducted, particularly during the last eighty-seven years.

With such a magnificent field for investigation as the "Anderson," as well as other interesting points throughout the vast regions in which he was stationed as a post and district manager for a period exceeding forty years (1852-1894), the writer of these Notes has since deeply felt and regretted that despite the many advantages pertaining to his position as a Company's officer, he has not (except at Fort Anderson) done a quarter as much as a collector and observer as he might and ought to have accomplished in ascertaining and making known to naturalists the copious wealth of the animal kingdom in the northern lands of his adopted country.

It may be here premised that this paper was largely prepared for publication at Cumberland House, the headquarters of Cumberland District, early in the winter of 1890-91, but for various reasons it was not completed at that time, while, unfortunately, several sheets thereof, together with some relative memoranda, have since disappeared, and this will explain the paucity of the remarks appearing under certain species headings. Quite a large number of the specimens of mammals which had been collected were lost or much injured by neglect on the part of their Indian and Eskimo collectors, or from various causes beyond careful control. The nomenclature of the following list has been carefully revised by the naturalists of the U. S. National Museum.

UNGULATA.

MOOSE—*Alces americanus* (Clinton).

This valuable food animal used to be very numerous on the Peace River, and, indeed, throughout the forest region of the northern portion of the "Great Mackenzie Basin"; but for the last twenty years it has been much less abundant, and, indeed, remarkably scarce in many parts, especially along the Athabasca, Peace, Liard, and other rivers, and the

larger lakes of the North. As moose have since been found more or less plentiful in the eastern, western, and southern sections of territory, where for many years previously they were rather rare, or conspicuous by their absence, it is now supposed by some observing natives and others that considerable numbers of them must have migrated southward, particularly during the remarkably mild winter of 1877-78. Be that as it may, it has been noticed that at intervals, and for several years at a time, this animal has been rather scarce in various sections where it had formerly been fairly abundant. It is easily scared, and no doubt much hunting ultimately succeeds in driving it away to distant and less accessible retreats. Previous to the establishment of Fort Anderson, in 1861, moose were frequently seen by us on our annual winter trade trips from Fort Good Hope to (the Eskimos of) Liverpool Bay, feeding along the high sloping banks of the Anderson River, but they soon after diminished in numbers, and had already become somewhat difficult to discover when the post was abandoned, in 1866. They are, however, to be found sparsely there to the very edge of the wooded country, especially in sheltered river valleys. Traces were observed by us near the Wilmot Horton River in the Barren Grounds, in about latitude 69° north and longitude $126^{\circ} 30'$ west. I may also mention that on my way back from a visit made to Anderson River in July, 1860, I came across and travelled through a veritable moose preserve of some extent, which lay between the usual hunting grounds of the Loucheux of Peel River and the Hare Indians of Fort Good Hope. Several moose were seen and one shot, while traces of them were very numerous. It was also the resort of many black bears and woodland caribou. Again, for nearly a decade subsequent to 1865 (in that year Fort Nelson, which, with all its inmates, had been utterly destroyed by the Indians in 1813, was re-established near its former site on the eastern branch of the Liard River), moose were much more abundant in the adjacent country than they

have ever been since. In the vicinity of farming and ranching settlements, however, they would seem to have become somewhat accustomed to the not distant presence of man, as is surely evidenced by their comparative abundance still in the eastern sections of the Province of Manitoba (and elsewhere), although they have been much hunted there of late years. No doubt the close season and the due enforcement of the relatively restrictive killing law have been important accounting factors for this state of affairs, which is so satisfactory not only to naturalists and sportsmen but also to other interested residents.

During summer, when the weather is warm and mosquitoes very troublesome, moose resort for protection to the shores of lakes and streams, and while standing in the water they sometimes seem quite indifferent to the near presence of man, and will then retire only after being repeatedly fired at. I myself had proof of this on one occasion when ascending the Anderson River in the end of June, 1866. There were five or six in the party when we observed three full-grown moose in the water. As they were not in good condition, we did not care to kill them, but, in order to test the truth of this peculiarity, I made the Indians fire a number of shots very close to them, but to no purpose. In fact, we had to scream and yell at them before they got out and stalked away at a very leisurely pace. According to a consensus of Indian reports from various quarters, the moose copulate annually during the months, or moons, of September and October, and the offspring appear some nine months later. The female generally selects a dense thicket on a lake island or islet, or in a clump of trees on a dry spot in the midst of a marshy swamp or other submerged tract of forest, for the purpose of bringing forth her young, which are usually one or two, and occasionally, it is said, as many as three, in number. At birth the hair-covering is very short and of a dirty-yellowish color, the eyes are open, and the newcomer is rather weak and helpless; but, after a compara-

tively short time, it is able to move about and soon becomes quite active. Suckling is supposed to continue for two or three months. When in good condition and stalked, the flesh of the moose is excellent eating, and, on the whole, more tender and luscious than the venison of the red deer or either species of caribou; but animals killed after a long chase on snow, or during or after the rutting season are far from palatable, owing to a strong and very rank flavour then acquired. The skins are dressed by native women and the resulting smoked leather is made into tents or lodges, mocassins, tunics, shirts, and trousers for winter and summer use by the resident population of the interior. Some skins are also cut up for pack cords and others turned into parchment for the requirements of the Hudson's Bay Company and others. Hunters assert that hermaphrodites and barren females are sometimes met with, and that these imperfect examples almost invariably attain a larger size and heavier weight than their fertile kindred. Chief Trader H. J. Moberly, an experienced officer, hunter, and woodsman, confirms the truth of this statement from his own personal observation. In his "North-West Passage," Doctor Armstrong mentions that Capt. Sir Robert McClure, one of a small party of explorers sent out in the spring of 1851 from Her Majesty's Franklin Search-expedition ship *Investigator*, then wintering in Prince of Wales Strait, said that he saw three animals which he firmly believed to be moose in about latitude 71° north and longitude 114° west. I think this is the first and only record of this animal having been met with on the lands lying to the north of the American continent.

Chief Trader James Lockhart has recorded that "the moose down at Peel River and Fort Yukon are much larger than up this way [Great Slave Lake and Fort Simpson]. There I have known two cases of extraordinary moose having been killed [probably one or both were obtained at Peel River], the meat alone of each of them weighing over 1,000 pounds. The Loucheux have a superstition that the Indian

who meets with one of these extraordinarily large moose is sure to die within the year, or else meet with some grievous misfortune."*

The above may belong to the gigantic species recently discovered on the western coast of Alaska, or they may be representatives of those referred to by Mr. Moberly. I have never met any of these monster moose, although, of course, I have seen examples weighing considerably over the general average.

WOODLAND CARIBOU—*Rangifer caribou* (Gmelin).

I do not think this species extends much beyond latitude 67° 30' north, except perhaps in spurs of the Rocky Mountains to the west. It is a larger animal than the Barren Ground reindeer, and is not met with in the "Barrens" proper, nor on the shores of the Polar Sea. Like the latter, the females produce one or two fawns in spring. The rutting season, as well as the period of gestation and time of birth, are said to be much the same as in the case of moose. The eyes of the young are open when born, the skin is light brown, and they soon become quite lively and strong. They are suckled for several months. The skin of the woodland caribou is dressed by the native women and afterwards made into necessary moccasins, gloves, tunics, and trousers, and sometimes women's dresses. Those cut by the gadfly are converted into "babiche" for lacing snow-shoes, and occasionally into thongs of various thickness, which were formerly, if not now, twisted into snares for capturing deer. Herds of the woodland species seldom exceed thirty or forty individuals, except in the autumn, when sometimes quite a large number congregate together. They do not associate with the Barren Ground reindeer, and seldom quit the forest country. Although known to exist at no great distance to the south, we never, to my knowledge, received at Fort

* Proc. U. S. National Museum, XIII, 1890, p. 307.

Anderson an example in the flesh, except the ribs of a few in a dried state; but in course of my six years' charge of Fort Good Hope (latitude 66° 16' north), the Hare and Nahanni Indians frequently supplied the establishment with a number of dressed skins and a considerable quantity of the venison of this animal. A similar remark would apply to my five years' residence at Fort Simpson (latitude 62° north, longitude 122° west); but although the species is fairly distributed throughout New Caledonia District, British Columbia, we seldom obtained any of its meat or preserved skins during my two years' charge. It is not uncommon in the Athabasca and Peace River Districts, nor at Cumberland House, Saskatchewan, where we occasionally received some venison and skins while I was stationed there in 1889 to 1894. It is not improbable, however, that the variety of woodland caribou found in the Rocky Mountains of northern Canada may belong to the mountain caribou discovered in the Selkirk Range of British Columbia and made known to science by Mr. Ernest Thompson Seton, in 1899. It is said to be darker in colour than Maine and other eastern specimens.

BARREN GROUND REINDEER—*Rangifer arcticus*
(Richardson).

Although this interesting animal has of late years been very irregular in frequenting ancient passes and haunts in the forest country, and in numbers very considerably less than formerly, yet it is believed to be still very numerous in the "Mackenzie Basin." The northern Indians were accustomed, in the face of repeated remonstrances on the part of the Company's officers and resident missionaries, to slaughter thousands of reindeer annually, chiefly for the skins and tongues, and too often from the sheer love of killing. But as they have latterly experienced protracted spells of food scarcity, and even actual starvation, I believe it has

taught them to be more careful and provident. Since the introduction of steam also into the districts of Athabasca (1883), and the Mackenzie River (1886), the provision posts of both have not been called upon to furnish more than a bare quota of the quantities of dried meat and pemmican absolutely required under the old inland York boat system of transportation. The hunting of reindeer has, therefore, largely declined, no doubt to their increase in numbers, and the Indians are able to devote more of their attention to the trapping of fur-bearing animals. The Eskimos of the Anderson and Mackenzie rivers, however, were never guilty of waste of food in the same inexcusable manner. They are a more provident race, and seldom suffer privation for want of food. In course of the Company's five years' occupation of Fort Anderson, we received considerable quantities of venison and many skins of the Barren Ground reindeer from the Eskimos and Indians who resorted thereto for purposes of trade.

During the comparatively short season of open water, the Anderson and Liverpool Bay Eskimos were engaged in fishing and hunting reindeer along the river, as well as walrus, seals, and sometimes whales, in the contiguous polar seas. In spring, when the reindeer were on their annual migration to the coast, but especially on their fall return to the woods, the Eskimos shot and speared a great number; in the former season while browsing on the slopes and summits of the Anderson River banks, and in the latter, when in the water making for their customary crossing points or passes. In both cases the successful hunter inserted an arrow in the carcase, so that on its floating by the lodges lower down the river it might be taken ashore for the benefit of the party by whom it had been killed. Early in December, the Eskimos usually retired to their driftwood-constructed huts, or winter houses, at various points along the coast, but before doing so they always made more or less provision for their return to the Anderson River in the

beginning of the succeeding month of April, by placing in one or more caches (built on and formed of large blocks of thick ice, well protected from wolves and wolverines, the chief robbers to be feared), some 30 or 40 miles from its outlet in Liverpool Bay, a considerable quantity of fresh venison. Early in March the female seals begin to bring forth their young, and the seal then became the chief object of chase by the Eskimos, who, as the days lengthened, moved out seaward on the ice from their winter residences on the coast to engage in the interesting task of hunting seals. After reaching the aforesaid caches, the bulk of the Eskimos would remain in the neighbourhood, using the meat, trapping foxes, and killing a few reindeer, and making the usual preparations for the summer season, until the disruption of the ice, when many of them would ascend the river, visit the post, and spend some days in its immediate vicinity, and in due time proceed to the seashore.

When I first reached the mouth of the Anderson River, early in February, 1859, instead of a village, as I was led to expect, there was but one large house inhabited by fifteen men, women, and children, while the nearest group of huts was, as they informed us, at too great a distance for us to visit in the very cold and stormy weather which usually occurs at that season, and which, indeed, prevailed during our two days' stay there. Our party comprised one Scotchman, one Swede, one French half-breed, and one Loucheux Indian, with two trains or teams of three dogs each. We found our quarters very warm and comfortable. Fort Anderson was established in 1861, after we had made several more winter trips to the same house, as well as to the spring provision rendezvous on the ice, already mentioned. By the autumn of 1865, however, several new huts were built at intervening distances from there to within some 60 miles from the post. This was done at my request, and their occupants met with some success in trapping foxes and minks, with a few martens, in the wooded ravines farther south. On

this and subsequent winter trips to the coast, we observed fresh traces of reindeer, while the Eskimos informed us that some animals were occasionally seen, and a few shot, almost every winter, very close to the ice-covered sea. The Fort Indians usually snared a number of reindeer in spring and summer, but their big annual hunt was made in the fall, when they frequently shot and speared them by the hundred. During the winter season they always succeeded in killing a few individuals now and then, but more, of course, when the snow happened to be deeper than usual.

When the fall of snow is light and the weather severely cold, the reindeer are almost constantly on the move, and are then very difficult of approach. At such times, especially when rabbits are scarce, the "caribou-eating" Indians frequently suffer much privation for want of food while following them for a living in their winter peregrinations. The skin of the reindeer furnishes the Eskimos with nearly all of their summer and winter clothing. The hair or fur is never removed in this connection; the made-up skin of the fawn forms the inner shirt, with the fur side next the body. (The skin of the musquash is sometimes used in a similar manner.) The outer tunic, shirt, or capote, with hood attached, is made from selected portions of adult late summer or early fall skins, with the hair outside and having the borders trimmed with a thin strip of the fur of the wolf or wolverine. A sufficient number of similarly scraped but undressed skins are sewed together and mounted on poles to form a summer tent or lodge, and also for sleeping robes or blankets for personal and family use. These robes are as flexibly prepared as the tunics, and are very comfortable on a cold, windy night. The Indians are also generally indebted to the reindeer for winter robes and capotes, and likewise for tents and dressed leather for making moccasins, gloves, tunics or shirts, trousers, game bags, and women's and children's clothing. Certain inferior and many fly-cut skins are converted into "babiche" for lacing snow-shoes,

and other suitable skins are made into deer snares and parchment for windows, while the tendons of all are split and twisted into fine and excellent thread for general use.

The remarks made under *R. caribou* in respect to the number and appearance of the young at birth, etc., are equally applicable to this species. I may here remark that albinos are very rare among the northern deer. In 1886 I obtained a fine example, which was forwarded to the Smithsonian Institution at Washington. It had been killed the previous winter by an Indian near Fort Chipewyan, Lake Athabasca, but, although I heard of a few instances elsewhere, I think this was the only one I ever saw in the interior. The Company generally exports a number of reindeer skins in a parchmentary and Indian-dressed state, which seldom realize more than their actual cost. In the years 1902 and 1903, respectively, they sold in London 321 and 267 reindeer skins.

Doctor Armstrong, of the *Investigator*, writes that besides several white bears, musk oxen, and other polar animals herein referred to, the hunters of that ship, while wintering in Prince of Wales Strait, saw a number of reindeer, though they failed to secure even one. In Mercy Bay, latitude $76^{\circ} 6'$ north and longitude $117^{\circ} 55'$ west, however, where it was finally abandoned on June 3, 1853, the total number of reindeer killed between October, 1851, and April, 1853, was 112. After reaching Melville Island, about latitude 75° north and longitude 109° west, the doctor, with several officers and men of Her Majesty's Arctic ships *Resolute* (Captain Kellett) and *Intrepid* (Captain McClintock), shot a large number of reindeer and several musk oxen, the meat of which weighed over 10,000 pounds. After four seasons' experience, Doctor Armstrong came to the conclusion that the reindeer inhabiting Baring Island do not migrate to the southward thereof. In Mercy Bay and Prince of Wales Strait many individuals and small herds were seen and a number shot during the severest months of the winter. "In

May and June the females calved in the ravines and valleys bordering on the coast, where the sandy soil mixed with the alluvium forms a rich loam which highly favors vegetation and affords good pasturage for the hungry denizens of its wilds." As reindeer are present all winter on Melville, Baring, and other large islands of the polar regions, I think it may be confidently assumed that there is no migration from them to the continent. On the latter, however, from Port Kennedy (latitude 72° N. and longitude 94° W.), Bellot Strait, its northeastern extremity, there is apparently a regularly recurring season of migration south and north. There may be a similar annual movement of reindeer between the northern coast and Wollaston Land by way of the Union and Dolphin Strait, and also from Victoria Land to Kent Peninsula by way of Dease Strait. Lieutenant Schwatka and Colonel Gilder observed considerable numbers of them passing over the ice on Simpson Strait, late in the spring and early in the winter of 1879 between Adelaide Peninsula and King William Land (Island). General Greely gives latitude $82^{\circ} 45'$ north as the probable highest polar range of the reindeer. An antler and old traces were found on Grinnell Land. Sir J. C. Ross writes that the does arrived at Boothia in April and the bucks a month later, while herds of several hundred were seen in May. He also mentions that "the paunch of the deer is esteemed a great delicacy, and its contents is the only vegetable food which the Eskimos of that country ever taste." While stationed at Mercy Bay, Doctor Armstrong made "various sectional preparations of the antlers of the reindeer in different stages of growth, as illustrative of its rapidity, in the hope of elucidating one of the most surprising processes of animal growth which bounteous nature enables us to contemplate as evidencing her wonderful reproductive powers." Unfortunately for science, however, these specimens, together with a fine collection of birds, mammals, and other objects of natural history, were left behind along with the abandoned ship

Investigator. As already mentioned, a number of hardy reindeer bucks remain all winter near the Arctic coast of the lower Anderson in Liverpool Bay.

Statement showing the yearly migration of the Barren Ground reindeer from the north, and their spring return thereto, as observed at the Hudson's Bay Company's post of Lac du Brochet, Reindeer Lake, 1873 to 1890.

Season.

1873.

None were observed passing the neighborhood of the post.

1874.

May 9. First deer seen on their spring migration to the north.

Nov. 14. First deer seen on their yearly return from the north.

1875.

Apr. 26. First deer seen on their spring return to the north.

Oct. 27. First deer seen on their autumn return from the north.

1876.

May 17. First deer seen on their spring return to the north.

Oct. 29. First deer seen on their autumn return from the north.

1877.

Apr. 21. First deer seen on their spring return to the north.

Dec. 28. First deer seen on their autumn return from the north.

1878.

Apr. 27. First deer seen on their spring return to the north.

Nov. 12. First deer seen on their autumn return from the north.

1879.

Apr. 24. First deer seen on their spring return to the north.

Nov. 18. First deer seen on their autumn return from the north.

1880.

May 12. First deer seen on their spring return to the north.

Nov. 26. First deer seen on their autumn return from the north.

1881.

Apr. 22. First deer seen on their spring return to the north.

Oct. 24. First deer seen on their autumn return from the north.

1882.

Apr. 26. First deer seen on their spring return to the north.

Dec. 15. First deer seen on their autumn return from the north.

1883.

Apr. 26. First deer seen on their spring return to the north.

Nov. 6. First deer seen on their autumn return from the north.

1884.

May 1. First deer seen on their spring return to the north.

1885. None were observed within many miles of the establishments.
1886. None were observed in the spring or autumn of this season.
1887. None were observed in the spring or autumn of this season.
1888. None were observed in the spring or autumn of this season.
1889. None were observed in the spring of this year.
- Dec. 21. First deer seen on their autumn migration from the north.
- 1890.
- Apr 16. First deer seen on their spring migration to the north.

ROCKY MOUNTAIN GOAT—*Oreamnos montanus* (Ord).

The Nahanni tribe of Chipewyan, or Athabasca, Indians of the Mackenzie River District kill a number of these goats annually in the northern ranges of the Rocky Mountains; but it is perhaps remarkable that no wild sheep or goats are met with in even the most extensive spurs thereof situated on or to the eastward of that great river. They extend, however, north to the Arctic Circle, if not beyond. At Forts Norman and Good Hope the Company frequently receives small quantities of the dried meat of this animal from their Indian hunters on the west side of the river and in the mountains.

DALL'S MOUNTAIN SHEEP—*Ovis dalli* (Nelson).

It is probably this recently-determined variety or species of wild sheep which inhabits the Rocky Mountains of the lower Mackenzie River to the Arctic coast, while the true Bighorn—*Ovis canadensis* (Shaw)—exists in the ranges to the south. Some of the western Eskimos, who occasionally resorted to Fort Anderson, wore outer coats or capotes made from the skin of this animal, with the hair attached. The Nahanni tribe of Indians belonging to the Company's northern posts of Nelson, Liard, Simpson, Norman, Good Hope, Peel's River, and La Pierre's House usually brought in for trade small supplies of the meat of the goat and sheep of the Rockies in a partly smoked or sun-dried state. We

always considered it, when in prime condition, second to no other variety of flesh food to be had in that extensive territory.

MUSK OX—*Oribos moschatus* (Zimmerman).

This interesting member of the family *Bovidae* has not, so far as I am aware, been discovered in the flesh to the westward of the Mackenzie River, nor, as a rule, are many met with in the tract of country lying to the eastward between that stream and the Anderson. Mr. P. Deschambeault distinctly remembers having, upward of fifty years ago, seen his first musk-ox skin at Fort McPherson, Peel River, then in charge of his father, Chief Trader George Deschambeault. It had probably been taken from a straggler by an Indian on the east side of the Mackenzie River. In the "Barrens" proper, however, as well as along the Arctic American coast, and on the borders of, and for a short distance within, the northern forest region to the south-eastward, in winter, musk oxen are fairly, though in no one place or section very, numerous. In fact, very few were ever observed by us on any of our several specimen-collecting tours from Fort Anderson to Franklin Bay, or on any other of our many summer and winter journeys within the Arctic Circle.

On one occasion, however (July 4, 1864), on our way back from that bay, we saw a herd of twenty-five animals of various ages reposing on the side (and just below the summit) of a gentle eminence in the Barren Grounds. A patriarchal-looking bull on the top of the eminence evidently kept guard, while the others appeared to sleep. I had been for some time endeavouring to obtain a pair of live calves for shipment to London, and as this seemed a good opportunity for making an attempt in that direction, we rapidly advanced to about 300 yards from their position, when we halted and unloaded our twelve Eskimo pack-carrying dogs and sent them at the herd, while several of the fastest sprint-

ers in our party of twenty followed as closely as they could. As soon as the dogs were perceived, the sentinel gave the alarm and the musk oxen immediately set off in different directions, apparently very much startled, but when the dogs began to bark the musk oxen rallied instantly, came together, and presented a rather formidable front to their assailants. This military-square-like formation on the part of the musk oxen seemed to have a rather terrifying effect on our dogs, as they almost ceased to bark, though now within a few yards of the herd. In the meantime we were all rapidly nearing the herd, and I was in hopes that with our dogs we might be able to surround or run down and capture one or more of the several spring calves observed. When they became aware of our near presence—the close proximity of the dogs (who resumed their barking) having taken up their attention—by the premature firing of a shot which fatally wounded one of the larger animals, they all scampered away at such a sweeping canter that we soon gave up the chase as hopeless, although our dogs continued to follow them for some time, but later returned to partake of the spoil of the killed animal. After skinning the three-year-old male, we noticed a moving object at some distance, which we supposed to be one of the dogs, but it turned out to be a spring calf which had evidently swerved from the main body and was doubtless searching for its mother. Several of the party thereupon started out with the dogs in full pursuit, and we all had to show our best paces for several hundred yards before we could reach the spot where he was brought to bay. We at once secured him by means of a looped line, but not before he was wounded by the dogs. We had much trouble in getting the calf to accompany us—in fact, we first let him rather exhaust himself in bucking and kicking like a goat, while he stubbornly refused to be led by a line. After a time, when prodded from behind, he would make a rush at his leader, but he eventually quieted down and followed the Indian to the camp. Next day he seemed rather subdued

and gave no trouble, not even when being carried across the Wilmot Horton River, but to my deep regret he died at sunrise the following morning, having no doubt bled to death internally. On reaching Rendezvous Lake, near the end of the eastern limit of the woods, my disappointment was great when I learned that a female spring musk-ox calf, which had shortly before been secured for me by an Anderson River Indian, had been killed by dogs during the previous night. Subsequent attempts in the same desirable direction unfortunately failed, and the field is therefore still open for the successful efforts of some favorably circumstanced and luckier party.

On another occasion (June 29, 1865), near the Wilmot Horton River, we shot a large bull which was grazing on a flat plain bordering on a small stream named Eagle. After approaching him we unloaded our dogs and they soon surrounded and began barking at him, a course which he resented by endeavouring to impale one of them on his sharply-curved horns; but just as we were coming within gun range he noticed us and at once made off at full speed. It was surprising to witness the seemingly easy, but really swift, gait at which this rather short-legged and clumsy-looking beast ascended a somewhat steep hill in front of him. A long and well-directed shot, however, suddenly ended his career. The beef proved acceptable to the men and dogs, and it neither smelled nor tasted of musk, as it often does later in the year, but especially during the rutting season, when it is scarcely eatable except by natives and a few of the Company's servants blessed with strong appetites and good digestive powers. The hide was secured, but the skin was so dilapidated, owing to the thick inner coating being still unshed except in large, ugly patches, that it was useless as a specimen.

During the severe cold of winter, the musk ox enters the outer sections of the forest and is frequently found therein to a distance of 40 or 50 miles, while we have heard of more

than one instance where a stray animal had been killed at fully 100 miles from the nearest "Barrens." The most southerly wandering of the species beyond the limits of its normal range is that recorded by Mr. Preble in *North American Fauna*, No. 22 (1902). A pair was seen on the "Barrens" between York Factory and Fort Churchill, in about latitude 57° north, and the male was shot. This authentic information was obtained by Mr. Preble from Dr. Alexander Milne, now Assistant Commissioner at Moose Factory, Hudson Bay.

The northern range of the musk ox is truly polar. Nearly every wintering Arctic expedition has met with them singly or in small (never in large) herds. Former traces have also been observed at many northern points, while on one occasion a travelling party on Melville Land (Island) saw a pure white individual among a comparatively large herd—probably the only instance of the kind on record. Between Sept. 3, 1852, and Sept. 9, 1853, the hunters of Her Majesty's Arctic ship *Resolute* shot 114 musk oxen on Melville Island, a clear proof of itself that they are fairly abundant in that remote locality. Doctor Armstrong, of the *Investigator*, says that in Prince of Wales Strait five, and during his stay in Mercy Bay, Banks Land, two, full-grown animals were killed. Several were also shot by himself and Lieutenant Pim on Melville Island. In 1875-76 Sir George Nares, of Her Majesty's exploring ship *Alert*, who wintered in latitude $82^{\circ} 27'$ north, longitude $61^{\circ} 22'$ west, secured quite a number of animals. The first herd seen consisted of a veteran and two young bulls and four old and two young cows. They were all surrounded and, with the exception of the first-mentioned, which required several bullets to finish him, were easily killed. Nares refers to the fact that in 1872 the crew of the American expedition ship *Polaris* shot twenty-six animals on the opposite side of Kennedy Channel during the twelve months passed by them in that latitude.

Markham remarks that "musk oxen ascend hills and

climb over rocks and rough surfaces with great ease." He further adds that "they are very irascible when wounded, and will sometimes attack a hunter and seriously endanger his life." Doctor Armstrong has also recorded an interesting experience in Prince of Wales Strait in which the dam and sire of a small herd brought to bay bravely stood in front protecting the others in the rear, an action which surely afforded strong proof of their affectionate instinct. On this occasion three males, the mother, and a young female calf were all shot. Sir Leopold McClintock, who had been engaged in several Franklin Search expeditions, writes:

The white cow (the albino observed on Melville Island) was accompanied by a black calf. The musk ox-climbers up the steepest rocks like a goat, and, when running, his long black hair heaves up and down, streaming in the breeze, and gives him a peculiarly savage appearance. It is so long that he occasionally treads thereon, and one finds hairs almost two feet in length stamped into the snow. There is an undergrowth of very thick wool, so soft and silky that the warmest gloves have been made of it. The musk ox is not absolutely deficient of a tail, but it never exceeds $1\frac{1}{2}$ inches in length. They do not seem to cross from one island to another, as the reindeer do, but usually roam about in small herds. Unaccustomed to man, they seldom deigned to notice us until we came tolerably near; then they would generally close together in an attitude of defense. While facing you their massive horns so effectually shield every vital part that it is useless to fire, and therefore a single sportsman must wait until their patience is exhausted and they alter their position; but it is desirable to get behind a block of glassy ice, a rock, or some rough ground, where they cannot charge straight at you, which we have known them to do before as well as after being fired at. I once came across a solitary old bull which instantly faced me, spent a few seconds rubbing his horns against his fore legs (a sure sign that mischief is brewing), and rushed on me at full speed; but I had taken the precaution so to approach him that I was able to shoot him when he halted on the brink of the ravine down which I had retreated.

McClintock further says that three or four sportsmen may station themselves about a herd at a distance of 70 or

80 yards, and then pick off the restless ones first, which so greatly bewilders the remainder that they are easily secured. He was himself one of three who thus shot down a herd of ten in three or four minutes. No wonder, therefore, that he ardently longed for a similar experience at Port Kennedy, as it would have furnished the crew of his vessel with fresh meat every day for three months, but unfortunately not an animal could be seen. In the vicinity of Fort Conger, Lady Franklin Bay, Grinnell Land, in latitude $81^{\circ} 44'$ north and longitude $64^{\circ} 45'$ west, General Greely, U. S. Army, commander of the American expedition, secured 103 examples of the musk ox. He gives latitude $83^{\circ} 3'$ north as the highest point where traces of this animal were observed by Lieutenant (Captain) Lockwood.

One or two writers have said that lichens form an important item in the diet of the musk ox, but Greely is positive (and I agree with him) that none of his party ever observed them eating any, while the stomachs of a large number examined by him did not contain a trace thereof. The contents clearly demonstrated that they fed on dwarf willow, saxifrages, and grasses. They use their hoofs in digging for these when the ground is covered with snow. There must, however, be fairly good pasturage in certain fertile spots amid the generally desolate and sterile lands situated in high latitudes, similar to that described by Doctor Armstrong as occurring on Baring Island, or it would be utterly impossible for reindeer and musk oxen to subsist there, as many do, all the year round. Of course, no such food scarcity exists on continental America, even in the so-called "Barren Grounds." Like all wild animals, the musk ox in winter quenches its thirst by eating snow.

As spring advanced, the musk oxen of the Anderson country migrated northward. The females are said to produce one, and sometimes two, at a birth. The Company's posts at which skins are usually traded are Fort McPherson

(from the eastern coast Eskimos), Forts Good Hope and Norman (from the Anderson Eskimos and from post Indians who specially hunt them), Rae and Resolution on Great Slave Lake (from Indian hunters), Lac du Brochet, Reindeer Lake, (from the inland Eskimos), and Fort Churchill (from the Hudson Bay Eskimos). It is only in recent years, however, that the Company has strongly encouraged the hunting of musk oxen, and although there is no record of the sale of any in the London Statement, 1853 and 1877, yet we now know that a number of pelts were occasionally, if not annually, traded at Forts Churchill and Anderson, at least subsequent to 1860, and that they must have been sold there or in Montreal (the British Company's former market for buffalo robes), as the statement of the northern department fur-returns for outfit 1865, printed herewith (p. 272), shows that the districts of Mackenzie River and York, Hudson Bay, collected 25 and 66 musk-ox skins, respectively, in that year. During the last thirty years the Indians and Eskimos have devoted more attention than before to the hunting of this valuable animal. In 1902, 271 skins and in 1903, 246 skins were exposed for sale, and the average for the past twenty years probably ranged between 200 and 250 pelts. The greater portion of those secured by the Company are purchased in London and reshipped to and used in Canada and the United States, chiefly as sleigh and cutter winter robes. In his "Explorations in the Far North," Dr. Frank Russell, of the Iowa State University, has given a very interesting account of his successful efforts in hunting the musk ox in the Fort Rae Indian country. His other experiences in the territories of Canada are well worthy of perusal, while his services to science reflect much credit on himself and his Alma Mater. Mr. Caspar Whitney's achievements in the pursuit of the musk ox, under the unfavourable conditions as narrated in his published volume, also deserve much commendation.

WOODLAND BUFFALO—*Bison bison athabascæ* Rhoad.

This variety of the American bison was fairly numerous when I first went north to Mackenzie River, in 1853, but it has since gradually diminished in numbers in the Athabasca district, and its utter extermination is now only a question of time, unless restrictive hunting rules are adopted without delay. When Thomas Simpson, the celebrated Arctic explorer, travelled down the valley of the Clearwater River, in January, 1837, traces of buffalo were quite abundant, but for the last forty years they have practically forsaken that quarter and have dwindled so greatly in number that only a few individuals are now to be met with in open spaces and patches of prairie in sections on the west side of the Athabasca River, between Fort McMurray and the Birch Mountain, as well as in similar tracts of country from Pointe a la Paix, on the Lower Peace, to the plains of Salt River, in latitude 60° north, which had from time immemorial been regularly frequented and occupied by hordes of bison. At the end of the eighteenth and in the earlier part of the nineteenth century, buffalo were abundant on the Upper Peace River, and many also roamed to the northwest as far as the Liard River. Even as late as 1864 a straggler was killed within 40 miles of the Company's post of that name, and another in 1866 about 25 miles from the same. Sir J. Richardson states that there were some bison in the Horn Mountain, south-east of Fort Simpson, in the beginning of the last century (1800), while some were also met with on the east side of the Athabasca, below and above Fort McMurray. During a residence of fifteen years (1870 to 1885) at Fort Chipewyan, Lake Athabasca, our native fort hunters never failed in winter to kill one or more bison for the use of the establishment, the meat of which was hauled thereto by the Company's dogs and servants. Nearly all of them were shot on the north side of the Lower Peace River. At that time the Indians of Forts McMurray and Smith always

secured a number in autumn and winter. Having seen the skins of numerous prairie buffalo many years ago, and those of several of the woodland variety, I think the only marked difference I noticed was that the outer hair of the latter is darker in color, and the inner is of a finer, thicker, and probably warmer texture than that of the former, while it is doubtful if the average "dressed beef" of either animal of the same age would materially differ in weight. In the winter of 1871-72 an Indian shot an albino example of the bison some 35 miles north-west of Fort McMurray. The skin was throughout of a faint yellowish white color. I have been repeatedly assured by Indians that the female very rarely has more than one calf at a birth. They have also said that, in winters of deep snow, wolves succeed in destroying some animals. They themselves have too often been guilty of unnecessary slaughter of bison under similar conditions, especially in former years. In the month of March, 1879, a small band of Chipewyan Indians discovered traces of a herd, consisting of twenty animals of various ages, near the Birch Mountain, and the snow being deep they did not suffer even one to escape. None of the flesh, however, was wasted; all of it was consumed by the party. The Company never exported any woodland bison skins for sale in London or Canada. Mr. P. Deschambeault remembers seeing, in the early fifties of the last century, two fine albino examples of the prairie buffalo in possession of Chief Factors John Rowand and James G. Stewart, both of which had been secured on the plains of the upper Saskatchewan River.

CARNIVORA.

CANADA LYNX—*Lynx canadensis* Kerr.

This is one of the principal periodic fur-bearing animals which regularly increase and decrease in numbers about every decade. The experience of observers, largely corroborated by the Company's London sales, is pretty much as

follows: The catch of lynxes for each of (say) three seasons when they are least numerous, or rather comparatively scarce, fell sometimes as low as 4,000 or 5,000 skins as the entire output for the immense extent of territory covered by the Hudson's Bay Company's business operations. The fourth year would double these quantities, the fifth often more than doubled the fourth, the sixth doubled the fifth, while the seventh almost invariably witnessed the maximum trade of skins. The eighth would still be good, while the ninth and tenth would each exhibit a startling decline in the returns, which in quantity would closely correspond with the sixth and fifth years, respectively, in each decade. Indeed, the regularity of these peculiar results in seasons of scarcity and plenty is remarkably interesting.

The Canada lynx is very widely distributed over the "Great Mackenzie Basin." It feeds on eggs, ducks, partridges, mice, stranded fish, and occasionally on a land-captured beaver, young deer, or sheep, while rabbits, of course, form their staple article of diet. It is chiefly taken in snares; some are trapped, and others are followed up with dogs, treed, and shot. The flesh is white and tender, and is an important and much-relished native country product. The female is said to bring forth from two to five, and not unfrequently as many as six, at a birth annually in June and July, the period of gestation being about three months. The young are about the size of a puppy, with the eyes partly open, but are very helpless for several days. They are suckled for about two months.

For the twenty-five years from 1853 to 1877, inclusive, the company sold in London a total of 507,450 skins of the Canada lynx, or an average of 20,298 a year. During that period, the minimum sale was 4,448 in 1863, and the maximum year was 1868, with 76,556 skins. The number entered in their catalogue in 1902 is 5,701, and in 1903, 9,031.

WHITE WOLF—*Canis albus* (Sabine).

GRAY AND BLACK WOLF—*Canis griseus* (Sabine).

The white is the most abundant variety of wolf in the far north; next comes the gray, and the black is the rarest. These wolves yearly succeed in killing as prey quite a large number of reindeer and not a few moose. On one occasion, while travelling upon the ice between Forts Liard and Nelson, in the Mackenzie River District, we came across a big patch of hard-packed snow on the Liard River where a large buck moose had evidently been surrounded, and no doubt overpowered, after a most gallant fight for life, by perhaps a score of ferocious and cowardly wolves. A few well-picked bones and the skull were the only relics left. At a short distance, however, we perceived a full-grown gray wolf, which was at once shot. It had one of its hind legs shattered by a kick from the moose, which so disabled it that it could scarcely crawl. Had its companions not been fully gorged they would doubtless have fallen upon and eaten it too.

Although the old saying "mad as a March wolf" may not apply generally, yet there are seasons when many of them undoubtedly suffer from distemper similar to that which some years attacks Indian and Eskimo dogs, and are then more or less dangerous. In the month of March, 1868, large numbers of northern wolves were thus affected, and several Indians and one or two servants of the Company were attacked and narrowly escaped being bitten, while it was currently reported that an elderly native woman had been killed about that time in the forest at a distance of several miles from Fort Rae, Great Slave Lake. Instances have also occurred where they have carried off dogs from the vicinity of the posts, and also from the winter night encampments of northern travellers.

In some seasons the woodland wolf is more abundant than usual at certain points throughout the north. It is

naturally more numerous in sections where reindeer abound. It breeds once a year—the female has from three to five, and occasionally as many as six, at a birth. The eyes of the young are closed, and they are as helpless as dog pups for some days after they are born. The male is believed to assist his mate in rearing the offspring. Copulation of the sexes takes place during the months of February and March.

Wolves of this kind have been observed and some captured on many of the large islands to the north of the American Arctic coast. Doctor Armstrong noticed a number on Baring Island and elsewhere, while Sir James Clark Ross states that considerable numbers of them collected on the narrow portion of the Isthmus of Boothia Felix in order to intercept the reindeer on their annual spring migrations. He also mentions that a single wolf will go among any number of Eskimo dogs and carry off one from among them without the others attempting to attack. General Greely's party obtained six examples at or near their winter quarters at Fort Conger, in Lady Franklin Bay, and he gives latitude $82^{\circ} 50'$ as the northern limit of this animal, which is there indigenous. Sir Edward Parry records its presence on Melville and the other North Georgian islands.

In the sketch of "North-Western America" (1868) Archbishop Taché, of St. Boniface, Manitoba, recounts a remarkable instance of persevering fortitude exhibited by a large dark wolf caught in a steel trap at Isle à la Crosse many years ago. A month afterwards it was killed near Green Lake, 90 miles distant, with the trap and connecting wood block still attached to one of its hind legs. It had evidently dragged both around in the snow for many a mile, during a period of intense cold, and it is therefore not surprising that it was a "walking skeleton" when finally secured.

From the Statement 1853-1877, inclusive, the Company sold in London as many as 171,770 wolf skins, or an average of nearly 6,871 a year. I think more than half of them must have belonged to the smaller variety, *Canis latrans*, of the

prairies and British Columbia. The three best sales were in 1855, with 15,419 (the maximum), 12,659 in 1859, and 12,616 in 1866; the three lowest, 2,802 in 1872, 2,083 in 1876, and 1,865 (the minimum) in 1877. In 1902, they sold 1,340, and in 1903, 1,790 skins. From 1858 to 1884, Athabasca District contributed 2,119 skins of the woodland (black, grey, and white) wolf to the London sales. For the outfits 1885 to 1889, it made a further addition of 339 skins. Between 1863 and 1884, inclusive, the district of Mackenzie River supplied a total of 1,880 skins of this animal. Its quota in 1889 was only 49 skins. From 1862 to 1887, Fort Resolution, Great Slave Lake, gave 193, and in 1884, 10 skins. The posts of the Upper Peace River, with its lake stations transferred from Edmonton, sent in 48 woodland wolves in 1889.

The Eskimos use the fur of the different varieties of wolves for trimming the hood and other portions of their deerskin capotes or tunics.

COYOTE—*Canis latrans* Say.

This smaller prairie wolf is not found much to the north of the northern branch of the Saskatchewan River; but on the west side of the Rocky Mountains it is, in some seasons, fairly numerous as far as latitude 55° north. Mr. Moberly, an intelligent and experienced observer, writes:

The prairie wolf seldom attacks any large animal except when led on by a woodland example. After a time, however, he will learn to kill domestic sheep without any assistance. They generally live on mice, gophers, musquash, berries, and carrion. I think the wood wolf inhabiting the plains country is much smaller than the kind found farther north, and also lighter in color, and may possibly be a cross between both species. It is more cowardly than the true woodland wolf.

He further states that the male renders no assistance whatever to the female in providing food for the young, which number from three to five, and occasionally six.

Indians have known of instances where both kinds of wolves and some of their dogs have mated, and they have always found that the resulting offspring were not only prolific, but also better and stronger as beasts of burden. Parry records an instance—the first authentic one known to him—where a setter dog had intercourse with a female wolf (*Canis griseus*). It was soon afterwards killed by a male of the same species.

New Caledonia District, British Columbia, usually sends out from 40 to 120 wolf skins annually, fully three-fourths of which belong to *Canis latrans*.

ESKIMO DOG—*Canis familiaris borealis* (Desmarest).

The Eskimos make use of this indispensable animal for travelling during the winter season, and in summer it renders much assistance in tracking their boats (umiaks) upstream, on the Mackenzie, Peel, Anderson, and other Arctic rivers. These boats are manned by women and are always steered by an elderly man. When tracking on the beach the woman is attached to the cord hauling-line next to the bow of the umiak; then follow at intervals, similarly harnessed thereto, from four to six dogs, who with their leader go forward or halt at the call of their driver mistress. Nearly all the hauling dogs used by the Company at Fort Anderson were obtained from the Eskimos.

Early in the month of February, 1864, a very virulent and fatal form of distemper broke out among the post and native dogs, and, in a short time, it carried off about three-fourths of their number; but as there was still much work to be done in the way of transport of outfit and returns between the Anderson and Fort Good Hope, besides the hauling of fresh venison from the camp of the fort hunter for the spring and summer use of the establishment, we had to be constantly on the lookout to purchase as many dogs as could be spared by visiting Indians and Eskimos, to replace

our heavy weekly losses. The distemper did not much abate until May, when it ceased almost as suddenly as it had appeared; but during the three and one-half months of its prevalence, the Company lost no less than sixty-five sleigh dogs at Fort Anderson, while the total native losses must have been very considerable. It was remarked at the time that bloodless fights between healthy and affected animals resulted in no injury to the former, but when the fight was hard and bloody the disease was thereby communicated and the bitten dog soon fell a victim to it. Comparatively few ever recovered. Most of the attacked animals became very quarrelsome, and some quite ferocious, while a few fled and died quietly in the neighbouring woods, or after travelling a distance of from 5 to 15 miles. In course of a residence of over thirty years in the districts of Mackenzie River and Athabaska, I have known distemper to occur on different occasions at several trading-posts in both, and always with fatal results to the dogs, but this Anderson epidemic was, I think, one of the very worst ever experienced in the far north. I find that Sir George Nares, when on his polar expedition of 1875-76, long after the foregoing was written, lost quite a number of his Eskimo dogs by distemper in his winter quarters in latitude 82° north. He writes that the "first observed symptoms thereof in an animal was his falling to the ground in a fit, soon followed by a rushing about in a frantic manner as if wholly deprived of all sense of feeling. On some occasions one would rush into the water and get drowned. At other times a few would wander away from the ship and be seen no more. Sometimes their sufferings would terminate in death. Several appeared to suffer so very much that they were shot to relieve the poor things from their pain." Markham also remarks "that nearly all Arctic expeditions have experienced the same kind of disease and mortality among their dogs, and for which there has hitherto been no remedy. Hydrophobia is unknown among the Eskimo or Indian dogs, as no one bitten by a

diseased animal has ever suffered permanent injury therefrom."

"Most of the true breed of Eskimo dogs are more or less wolfish in appearance, while others facially resemble the common fox. Many of them are very playful and affectionate, but some others are bad tempered, sulky, and vicious in disposition. McClintock mentions one or two notable characteristics. "Chummie," the favorite dog in Commander Hobson's Eskimo team, while on the *Fox* in her celebrated pack-ice drift, disappeared and was supposed to be lost; but "after an absence of six days he returned decidedly hungry, although he could not have been without food all the time, and evinced great delight at getting back. He devoted his first attention to a hearty meal, then rubbed himself up against his own particular associates, after which he sought out and attacked the weakest of his enemies, and, soothed by their angry howlings, lay down and coiled himself up for a long sleep."

Like domestic and Indian dogs, the female of the species under review reproduces at various seasons, but as a rule most frequently during the warmer months of the year. The litter of pups seldom exceeds five in number, sometimes less and occasionally more, and there is no apparent difference in other relative dog characteristics. The full-grown female, however, is generally smaller in size than the male.

Arctic explorers and other voyagers of experience have written much and spoken highly of the capacity, the fortitude, and the endurance of the North American hauling dog. After half a century's residence in north-western Canada the writer of these notes would be able to fill many pages with dog lore, but he has no desire to thus tax the patience of those who may peruse them. At the same time he thinks that a few readers might possibly take a little interest in certain traits, as well as in the performances of a small and rather short-legged dog of Eskimo breed, born tailless, which formed one of the train or team of a Hudson

Bay sled of dogs conducted by himself on a winter journey of fully 2,000 miles, from Fort Simpson, on the Mackenzie, to Oak Point, near the southern end of Lake Manitoba. We left the former point on November 30, 1869, and reached the latter place on February 22, 1870. We accompanied the Old Hudson Bay winter packet, due to leave Fort Simpson annually on December 1, Fort Chipewyan January 2, Isle à la Crosse January 20, and Carlton House, Saskatchewan, early in February; but by rapid travelling the party managed to arrive at Chipewyan nine or ten days ahead of time. After a rest of several days we started with my own and another team of fresh dogs carrying our baggage and provisions. No time was lost on the march; in fact, we got over the ground between the different Company's posts at a very rapid gait, and always had fresh baggage, men, and dogs, while the packet was dispatched independently on the usual dates from Fort Chipewyan, post to post, to Carlton. By this means I was enabled to give frequent rests, exclusive of Sundays, to my own team and personal servant, and also spend about a month in the aggregate with friends and acquaintances on the way. We never delayed the packet; on the contrary, when we finally overtook its bearers, our fourth and their seventh day out from Carlton, the united party made better progress, and but for the first Red River insurrection of Louis Riel it would have arrived at Fort Garry, if not earlier, certainly not later, than the usual date. When we reached the Company's post at Touchwood Hills, there were orders for the packet to report at Fort Pelly instead of proceeding by the direct route by way of Fort Ellice. This necessitated the adoption of a much longer and more tedious course by way of Forts Qu'Appelle and Pelly, Shoal Lake, Waterhen River, Manitoba House, Oak Point, and White Horse Plains to Fort Garry, which was reached on February 25, 1870. Having long lost the brief itinerary of this journey, I cannot at this late date give details, but I firmly believe that the time actually con-


sumed in traveling was less than seven out of the twelve weeks spent thereon (except on the last we always rested on Sundays), and for that time we averaged more than 40 miles a day, a record probably never before or since attained by the same dogs on a trip of equal extent. Four of the five haulers were of Eskimo breed, and they were engaged thereon from start to finish. A spare dog who lingered behind our second day out from Fort Simpson was killed by a band of wolves not far from our night encampment. Another of the team, which suffered severely from sore paws, was replaced at Chipewyan. With the exception of one or two of the last of the many trade posts between Fort Simpson and Oak Point, the team invariably arrived at a rattling fast pace. It was the custom in those days, as it still is in some parts of the great interior, for winter voyagers to stop for a short time within a few miles of a post in order to make themselves presentable to the inmates. The dogs were also dressed with worsted or silk-fringed tapis of fine cloth, richly beaded or embroidered, and banded with brass or silver-plated round bells. Ribbon-adorned iron-branded stands of small open bells screwed on top of their harness collars, having three or four of a larger size stitched to the lower part thereof, made a fine display, while the jingling of the bells emitted sounds of a musical and agreeable nature. From previous experience, the dogs knew that they were approaching a haven of food, plenty, and temporary rest, and, once started, they lost no time in cantering over the intervening distance. In course of upward of forty years' personal knowledge and experience of hauling dogs of various breeds in arctic America, British Columbia, and the Northwest Territories, the already-alluded-to smallest dog in my own team, "Keskayoo" (Cree for tailless dog), was, *for his size*, the very best all-round hauler I ever met, drove, or heard of in the country. The very nearest approach to him in endurance and other good qualities was "Cerf-volant," so highly and justly commended by Colonel (now General)

Sir William F. Butler, G.C.B., in his "Wild North Land." During the winter of 1872-73, we travelled together from Carlton House to Fort Chipewyan, and I had, therefore, ample opportunities of witnessing the admirable qualities of that fine animal.

The mother of Keskayoo was barely a month old when I bought her from an elderly Eskimo woman at Fort Anderson, where she eventually developed into a small but compactly built creature. Her first litter of pups consisted of three males (one died of distemper months afterwards) and one female, who subsequently became the mother of the unfortunate dog eaten up by wolves on December 1, 1869. (The two survivors made the long winter journey.) On this occasion the mother appeared to suffer agonizing pain in endeavouring to bring forth her first-born pup, but the administration of a dessertspoon-ful of tincture of lavender acted like a charm. The relief given was immediate, and all four pups were born without delay.* Her next confinement, seven months later, was apparently easy. There was but one male (Keskayoo) and two females:

A more devoted and affectionate family of dogs I never knew. In corroboration of this view I would mention a few traits: The last litter was brought forth in a wooden kennel within the fort stockades, during the season when Indians and Eskimos were frequent visitors, and some of their hungry dogs would have no hesitation in devouring any stray puppies; but for months after their birth one or more of the first litter kept guard with the mother in protecting the young puppies from this or any other danger. In fact, they were never left alone during a period of several weeks, but were always carefully watched. I cannot remember any instances of quarrelling among themselves. On the contrary, they never failed to stand by each other when attacked by strange dogs or when they themselves became aggressive.

*I may here remark that I have personally known several cases in which this medical preparation greatly aided both human and canine mothers under similar circumstances.



At times, long after he became a hauler, Keskayoo seemed to delight in beginning a fight with other dogs. He was himself a living embodiment of daring, energy, and pluck, quite capable of coping successfully with many of a much larger size, knowing, as he did, that his brothers would rally to his assistance in the event of his tackling a more powerful antagonist, or in a general scrimmage. It was sometimes amusing to watch Keskayoo while being fed, both at Fort Simpson and at the various posts on the above described journey. A big "bully" among visiting teams at the former (the fort dogs let him severely alone) or the "cock of the walk" at some one of the latter, judging him by his small size, would brazenly come along and attempt to rob him of his fish or meat, but almost in a twinkling of the eye the assailant would be sprawling on his back, severely bitten, retiring afterwards quite crestfallen, with his tail between his legs. The unexpected suddenness and strength of the attack seemed to completely disconcert the would-be robber. It was seldom, indeed, that a second attempt of this kind was made at the same place.

Previous to the abandonment of Fort Anderson, early in July, 1866, it frequently surprised me to witness the joyful greeting which took place between the mother and surviving offspring of both litters when they met after days or weeks of necessary separation. Indeed, they were constantly together whenever possible. Two of the later litter died of distemper and the old mother herself perished a couple of months after giving birth to four beautiful pups in her third and final confinement. Unfortunately they were accidentally frozen to death in December, 1865.

Keskayoo was exceedingly quick and active in movements of attack or defense, while the protection afforded by his own remarkably long-haired and densely thick fur skin-covering rendered it almost impossible for any dog's teeth to meet in any vulnerable portion of his body. Poor Keskayoo died during my first brief visit to the old land in 1870.

He was a wonderful little animal; he never seemed tired or weary; he was always ready and willing to follow the track beater, or the sled ahead of him; for three-fourths of the entire journey he acted as foregoer or leader of his own team. Years of association with these dogs naturally brings about an almost human regard or affection for them, and their death frequently seems a personal loss.

Although much more of an interesting nature might be related of this and other northern hauling dogs, the writer will conclude with a few remarks regarding the appearance of what, from the perceptible symptoms, must have been English dog distemper. In summer it was usual to send the Fort Simpson dogs to Big Island, at the west end of Great Slave Lake, where fish are more or less abundant all the year round, to be well fed until the autumn. Early in October, 1869, my team of dogs arrived with the first fish boat from that point; but, to my deep regret, I found that two of the best had been ill for over a week and utterly unable to walk or even stand up, and they had to be carried from the river to a picketed yard adjoining the officers' residence. Their hinder parts seemed to be entirely paralyzed. As they were strong and tried animals, I naturally desired to have them with me on my then contemplated trip to Fort Garry (now Winnipeg City). Knowing that there were several boxes of Holloway's celebrated pills among the post's store of medicines, I determined to test their vaunted virtues by ascertaining if they were equally efficient in canine, as they claimed to be in human, ills. I began by giving them each a dose of five pills, night and morning. After one week's course I reduced the number to three, and at the end of the fortnight there was a perceptible improvement, which became more marked and assuring as the weeks went by. About the middle of November I began to harness and drive them slowly around. The two convalescents staggered a great deal, and this continued for some days; but a short time prior to our departure, on November 30,

1869, they had nearly recovered and were able, with the others, to make daily runs of several miles at a very good pace. The improvement continued, and I think they became almost as strong and untiring as ever. Some of the fort residents all along asserted that they could not recover fully or stand the long journey; but I, who had much previous knowledge of their staying powers, was of a different opinion, and the result proved that I was right.

HARE INDIAN DOG—*Canis lagopus* (Richardson).

This animal is more or less typical of the indigenous Indian dog of the far north of Canada. It is not so stout or strong as the Eskimo dog, but many individuals can endure a vast amount of hardship in the shape of heavy sleigh and packing work with but little to eat. It is even more necessary for the Indians, especially the so-called "Caribou Eaters" (as the latter move and travel about in winter, following the reindeer) than is the case with their brethren who subsist chiefly on fish, rabbits, beaver, and moose. The Eskimos, with the exception of roving traders from the west and Alaskan coast of North America, do not make any very extensive excursions during the winter season. In birth, traits, habits, and liability to epidemics there are no material differences between it and *Canis familiaris borealis*, nor, for that matter, with the rather mongrel breed or introduced varieties of hauling dogs used by the Company, missionaries, and the "freemen" of the interior. I might also mention that I have heard of one or two instances of English distemper having appeared among inland dogs.

RED FOX—~~CROSS~~ FOX—SILVER FOX—BLACK FOX
Vulpes (Sps.).

The natives consider the foregoing as belonging to one and the same species (the common red fox), an opinion generally, but not universally, accepted by naturalists and

collectors; and while it is just probable that the different varieties have occasionally been found among the litter of a red fox mother, yet I have for a long time been of the opinion that there must have been originally two distinct and well-defined species of North American fox—the pure red and the pure black (*Vulpes fulva et V. nigra*)—and, as a matter of fact, there still exist many of the former and some of the latter throughout the entire region under review. I also firmly believe that sexual intercourse between a male and female red fox invariably results in the production of only red foxes. I am equally satisfied that similar results always follow cohabitation between a male and female black fox. In course of many years' trading of fox skins, I have observed perhaps every possible degree of variation between the practically perfect, typical red fox and the same description of the black form. These varieties between the two are easily accounted for as a consequence of the natural commerce which exists among the sexes during the annual seasons of copulation.

Since writing the above, I have come across Chief Trader Bernard R. Ross's "Popular Treatise on the Fur-Bearing Animals of the Mackenzie River District." I will now quote from page 16 thereof the views held by him and therein stated, and with which I fully agree in this connection:

In treating on the different varieties of foxes I have spoken of, it is extremely difficult to mark the line where one ends and the other commences. During my residence in these regions I have seen every shade of colour among them, from a bright flame tint to a perfectly black pelt, always excepting the tip of the tail, which in all cases is white. Even the judgment of an experienced fur trader is sometimes at fault to decide, in bartering, to which of the three varieties a skin should belong, as they bear different prices. Still, notwithstanding this, I consider these colours to have been produced by intermixture of breed; the different varieties being, in my opinion, quite as distinct as those of the human race. And I do not think that any of the progeny of two pairs of red foxes would be either black or cross. In cohabiting, the male foxes accompany the females in bands of from 3 to 10, much in the

manner of domestic dogs. At Dunvegan, on Peace River, I have repeatedly observed this. The males fight violently for the possession of the females; many are maimed and some killed. A number of males thus in all likelihood cohabit with the same female, which gives rise to the varieties of colour in a litter.

Instances are reported as having occurred in which all the varieties were taken in one den, but of this I am rather doubtful. It is very difficult to tell the future colour of cub foxes; the red appear to be cross, and the cross to be silver, which may have caused an error, though I write under correction. I have seen many Indians even mistaken in this. They have brought me live cub foxes for silver, which on growing up proved to be cross. My own theory is that the silver fox is the offspring of two silver parents; the cross, of a silver and red; the red, of two reds; and the different shades being caused by fresh inter-breeds. Thus two negroes will have neither white nor mulatto children, nor will two whites have black or mulatto offspring. I do not know whether I have explained my ideas on the subject clearly or not. They are the result of my experience on a subject to which I have given no small attention. I have often robbed fox dens, and have also bred the animals, and the summing up of this part of my subject may be thus made—like colours reproduce like; black and red being origins, the cross is the fruit of intermixture between these shades. I kept a pair of cross foxes in confinement at Slave Lake; their offspring were *all* cross. I had only one litter when the bitch died. Foxes are very shy animals, and difficult to tame; indeed, when old they appear to pine away in confinement; when young they are playful, but at all times rather snappish. They are far from being sociable, and generally burrow alone, although it is not uncommon for the members of one family to live together.

The above views, I deferentially opine, are perhaps as reasonably probable as that of the eminent Prof. Spencer F. Baird in respect to the origin of the American red fox, which he and others thought might be the lineal descendant of individuals of the European red fox introduced many years ago, the fact of their present abundance and extent of distribution being no barrier to the reception of the idea. It is rather remarkable, however, that the supposed varieties—cross, red, silver, and black—should, in Europe as well as in America, be confined to the northern portions of both

continents. Neither can the gray fox of the United States, entirely unknown in north-western Canada, be considered as their progenitor, as these varieties are conspicuous by their absence wherever that species of fox predominates. I now regret that during my long residence in the Indian country I neglected to have the theory of fox origin practically tested, but I hope the matter will eventually receive due attention.

Doctor Armstrong mentions that one of the crew of the *Investigator* saw a "black fox" on the shores of Baring Land (island), near Cape Colquhoun, early in September, 1851. Again, on November 11 of the same year, one of the men observed another black fox on the ice, about a mile from the ship, then wintering in Mercy Bay, latitude 76° north. He further says that there was no previous record of the appearance of this animal so far north, but that its existence there could not be questioned. It may be asked in vain, Were these foxes but one and the same individual twice seen, or were they indigenous, or a pair of recent stragglers from the continent? With the exception of the blue and white foxes (*Vulpes lagopus* and *Vulpes fuliginosa*), of which all Arctic explorers make frequent mention, I believe these are the only recorded instances of any species of fox having been observed on the lands situated to the north of the American Continent.

In course of fifteen years' residence at Fort Chipewyan, Lake Athabasca, the Indians brought me five litters of young foxes. Until they were several months old it was very difficult to determine the variety to which they belonged. The red first declared itself. Two of the litters (five and seven cubs, respectively) were all red, as was their mother; two were all cross (mothers were cross), five cubs each; and the fifth consisted of one red, one very fine, and three fair cross foxes, from a red female. I would remark that they were successively kept within a small, closely-stockaded yard adjoining the office building at Fort Chipewyan. At first each litter was placed in a small wooden kennel, and they were very

lively and frolicsome. They soon came to know those who fed and visited them, but they were timid, snappy, and retiring with strangers. As they grew up and the season advanced, they took to burrowing in the ground under the office, but they never tried to get away. So soon, however, as winter approached and snow began to fall, they became very restive and made frequent attempts to escape by tunneling under the building and the outer stockades. In time, one or more of each litter were successful in their efforts, and soon after fell victims to outside trappers at no great distance from the establishment. This, of course, led us to dispatch the others for the benefit of their attendant. Dogs also managed to kill two or three of the total number.

The female brings forth annually in spring from three to as many as six and seven at a birth. They are born blind, and are very helpless for some days. Gestation occupies two months, and the young are said to leave their natal home when several months old. They are generally most numerous around the shores of lakes and among marshy tracts in the vicinity of the larger rivers.

It is a well-known fact that foxes greatly fluctuate in numbers—for some years in succession they are very abundant, and then for a longer or shorter period they become comparatively scarce. Chief Trader Bernard R. Ross (1848 and 1860) estimated that the proportion of the various colored foxes traded by the Company in the Mackenzie River district for twelve years of his time would be about six-fifteenths red, seven-fifteenths cross, and two-fifteenths silver and black. From 1853 to 1877, inclusive, the Hudson Bay sales in London totalled 68,454 cross, 256,790 red, and 20,117 silver and black. For thirteen of the twenty-five years, the cross-fox sales fell below the average of 2,738 a year, say from 1853 to 1856, 1862 to 1866, and 1872 to 1875, and these minus quantities ranged from 1,172 in 1854 to 2,315 in 1873. The other twelve years varied between the lowest, 2,455 for 1876, and the highest, 5,174 skins in 1869. If

we observe the same rule in dealing with red foxes, we have only eight years which exceeded the average of 10,191 skins. These are 1857 with 10,526, 1859 with 11,488, 1860 with 11,031, 1867 with 20,824, 1868 with 26,822, 1869 with 20,267, 1870 with 13,058, and 1877 with 11,233. Four more years were not far under the mark: 1858 with 9,707, 1861 with 8,897, 1875 with 8,973, and 1876 with 9,838. The remaining sales of the period ranged between the lowest, 3,175 in 1854, and 8,760 in 1865. The average number of silver and black foxes for the twenty-five years was 804. Eleven of these years exceeded the average, namely: 1853 with 847; 1857, 1,072; 1858, 1,060; 1859, 1,164; 1860, 1,177; 1861, 1,066; 1868, 1,253; 1869, 1,490 (the maximum); 1870, 914, and 1877 with 971 skins. The year 1875 fell short by nine skins. From the minimum sale of 390 in 1854, we have had a series of four years between that figure and 696 in 1871. In 1902 the Company sold 1,447 cross, 5,912 red, and 280 silver foxes; and in March, 1903, 1,970 cross, 6,200 red, and 491 silver and black foxes. It may also be of interest to mention that for fifteen (1863-1877) of the often-referred-to twenty-five year London sales statement, Mackenzie River District supplied 6,072 cross, 8,034 red, and 1,699 silver and black foxes. For twenty years thereof (1858-1877), Athabasca District contributed 4,652 cross, 6,582 red, and 1,450 black and silver foxes. All these facts go to establish the claim that these foxes should be classified among the "periodical" fur-bearing animals of North America. In the Indian country tributary to Fort Anderson, the several varieties of foxes were fairly abundant in good years, and this was more so on the lower portion of the river and along the Arctic coast between Herschel Island and Cape Bathurst.

KIT FOX—*Vulpes velox hebes* Merriam. . .

This fox does not inhabit the territories to the north of the upper Saskatchewan River, nor is it found in New

Caledonia, British Columbia. I never obtained an example during two years' residence at Fort St. James, Stuart's Lake. I was equally unsuccessful at Cumberland House, lower Saskatchewan, where I was stationed from 1889 to 1894. It used to be abundant in the great prairies of the West from that river to the international boundary. Naturalists may be interested in the fact that the total number of skins of this animal sold by the Hudson's Bay Company in London from 1853 to 1877, inclusive, was 117,025. The best year was 1858, with 10,004, and the poorest, 1864, with 2,410. There are no foxes of this kind entered in their fur catalogues for 1902 and 1903.

WHITE FOX—*Vulpes lagopus innuitus* Merriam.

The white fox is numerous most winter seasons on the Arctic coast inhabited by the Eskimos of the Anderson and Mackenzie rivers, and no doubt more or less so on other American polar shores, and, when this is the case, numbers are also met with in the timbered regions to the south and on the larger ice-covered lakes and rivers. Even northern sections of the country hunted by Indians belonging to some of the Company's trade posts of Cumberland and English River districts have, at times, succeeded in trapping a few examples. In 1876 Cumberland House had 5, in 1873 Moose Lake secured 3, in 1884 the Pas had 2, and Pelican Narrows 16, in 1886 Rapid River caught 2, and Lac du Brochêt post traded 785 skins, nearly all from its northern inland Eskimos; in the winter of 1890 Portage la Loche secured an example. A few white foxes have also been trapped on the south shore of Great Slave Lake, but at Fort Resolution the natives of Fond du Lac and the northeastern tract, who resort thereto, seldom fail to bring in some skins every season. The catch there from 1862 to and including outfit 1877 averaged 42 a year. Fort Rae, at the northern end of the same great inland sea, also turns out a few skins most years. In 1877,

it had only two examples, but the average for 1880 to 1882 was 23 for the three outfits. Many years ago an individual of the species was shot a considerable distance up the Peace River. Sir John Richardson states that early in the nineteenth century two white foxes were seen near Carlton House, on the Saskatchewan River.

We hardly ever saw a live white fox on our many summer and winter trips in the Arctic regions of Canada. Neither have I observed among several thousand prime winter skins of this animal one that was not almost if not wholly pure white, while the blue variety always appeared distinct in color. McClintock, who had many opportunities for observation, writes that both white and blue foxes are found in all Arctic lands, and that they are beautiful animals, full of tricks and impudence. In September, 1853, he "captured a litter of three cubs of a dark grayish color—fierce little fellows with most restless eyes and pliant weasel-shaped bodies. Not unfrequently foxes would venture on board the Arctic ships in winter and be caught even in traps set for them on deck. When irritated they gave a short, suppressed bark, and they sometimes uttered a strange cry resembling that of a hawk, goose, or gull." At Port Kennedy, where he passed the winter of 1858-59, McClintock secured two polar bears, nineteen white foxes, nine hares, eight reindeer, and eighteen seals; several ermines and lemmings were also caught. Sir J. Clark Ross, who passed several years in Victoria Harbor, Boothia, latitude 70° north and longitude 90° west, states that the foxes breed there early in June, and have from six to eight young at a birth. On one occasion, several weeks later in the season, he captured six little ones in a sand burrow close to the ship's wintering position. White foxes were numerous in that quarter, and upward of fifty were trapped. Sir George Nares observed a "mottled" fox in latitude 82° north. Doctor Armstrong also refers to the presence of *V. lagopus* at Mercy Bay and Prince of Wales Strait, where some fifty specimens were taken during their long stay.

Other expeditions in the polar regions have met with many white and a few blue foxes. General Greely obtained but twelve of the former, and he gives latitude $83^{\circ} 24'$ north as the most northerly range of this animal, which is there indigenous. He says that the white fox of the Grinnell Land section is much more wary than that of a few degrees of latitude farther south, and therefore very difficult to approach for a shot, while all but one example rejected many poisoned baits set for them. Mr. Peterson, the well-known Eskimo interpreter of several expeditions, asserted that this species made caches of food for winter consumption. Captain Lockwood found several fox lairs. In one hidden rock nook he found fifty dead lemmings, in others (sand and earth covered) there were from twenty to thirty lemmings, while in a hollow he discovered a cache containing part of a polar hare and the wings of a young brent goose and the usual lemming. Some lairs appeared to be occupied from year to year. McClintock writes that in March, 1859, at Port Kennedy, he shot a couple of white foxes that came playing around the dogs, and, conscious of their superior speed, were very impudent, snapping at the dogs' tails, and passing almost under their noses. The captain intended both foxes for the mess table, but the dogs anticipated him in respect to one. The flesh of the other proved insipid, but decidedly better to the taste than the tinned meat.

When comparatively scarce, or rather less numerous than usual, as sometimes happens in their native habitat, it is a rare thing to meet with any foxes in the interior. It is said that a litter consists generally of three and four, seldom five, and when born the young are blind and helpless, but they soon acquire sight and gradually increasing strength, and they also become active and very playful. The adult fox is seemingly stupid and is easily captured by both Indians and Eskimos. It lives on mice, lemmings, birds, and carrion.

During the period of twenty-five years, 1853 to 1877,

the Company sold in London a total of 124,100 skins, or an average of 4,964 a year. The three best sales were in 1856, 1864, and 1869, which amounted to 10,311, 12,242 and 12,088 respectively, and the three lowest were in 1855, with 1,897, 1859 with 1,577, and 1871 with 1,805 skins. In 1902, 8,487 skins, and in 1903, 10,717 skins were sold at the same place.

If the Hudson Bay and Canadian Arctic blue fox be a variety of *Vulpes lagopus*, which I certainly doubt, the stone-blue fox of the Pribilof Islands and other Alaskan islands, even in originally introduced cases, is surely entitled to specific rank. Blue foxes occur very sparingly on the northern, Hudson Bay, and Labrador coasts. We secured very few skins thereof at Fort Anderson. It is, indeed, a very rare inland visitor. Mr. Bernard R. Ross writes that up to the close of outfit 1861 he had known of only two instances, and in both the examples were secured on the verge of the "Barren Grounds," situated near the eastern end of Great Slave Lake. The very next season, however, after his departure from Fort Resolution in 1862, the same Indian tribe killed one summer and three prime winter skins thereof. Outfit 1872 also records another winter example. From 1853 to 1877 the Company had in all but 1,100 blue foxes for sale in London, an average of only 44 a year. The three best year's sales were in 1864 with 82 skins, 1869 with 124 skins, and 1873 with 90 skins. The smallest sales were 3 skins in 1860, and 13 skins in 1868, while the years 1857, 1859, and 1871 yielded but 15 skins each. Chief Factor Robert Campbell, one of my predecessors in charge of Athabasca District, received three skins in 1859 and two more in 1862 from the most northerly Indians who resort to Fond du Lac, Athabasca. During my fourteen years' management, we obtained 15 skins from the same "Barren Ground" quarter. It may also be mentioned that between 1862 and 1883 the district of Mackenzie River traded 140 skins, nearly all from the Eskimos resorting to Fort McPherson.

Fort Good Hope gave an occasional skin as the result of Indian trade with the Eskimos of the Anderson after the Fort was abandoned in 1866. In 1886 Fort McPherson turned out three and Good Hope three also. In 1887 the former gave eleven skins and the latter one. In 1889 Fort McPherson had one, Rampart House one, and Lac du Brochêt, Reindeer Lake, traded seven skins from its northern inland Eskimos. Sir James C. Ross obtained three examples of this fox on the shores of Boothia. Parry secured several, and although Armstrong and Kellett, of the *Resolute*, each have about fifty foxes in their game lists, which have been considered as white, one or more of them may have been blue. Nares, as above stated, observed a "mottled" specimen, while Greeley writes that eighteen of the twenty secured by him on Grinnell Land were free from any sign or mark of white, red, or yellow, and that all of them were smaller in size and lighter in weight than the twelve of his captured dozen of *V. lagopus*. McClintock, however, shot a prime blue fox while drifting in the *Fox* with the pack-ice in the winter of 1857-58, although 130 geographical miles from the nearest land. It was very fat, having probably lived on dovekies. McClintock often observed tracks of the Arctic fox following the polar bear for discarded seal scraps.

WOLVERINE—CARCAJOU—*Gulo luscus* (Linnæus).

This comparatively powerful and very destructive animal is to be met with all over the northern continent to and along the shores of the Polar Ocean. Although Doctor Armstrong does not have the wolverine in his list of observed mammals, yet several Arctic explorers have either seen the animal or traces thereof in very high latitudes. A skull, minus the lower jaw, was picked up on Melville Island, latitude 75° north. Sir James Ross found it abundant on Boothia Felix. He received skins of two adult and two young wolverines from the Eskimos. Another was captured in winter on

shipboard, having fearlessly climbed over the banked snow in search of food which, from his thin condition, he much needed.

When in prime condition, the fur of the wolverine is highly prized by the Eskimos, more so than that of the wolf, for the purpose of trimming the hood and other portions of their outer reindeer-skin clothing. Several skulls of adults and two skins and skulls of young animals were secured at Fort Anderson and duly forwarded to the Smithsonian Institution at Washington.

The Company of Adventurers of England trading in Hudson's Bay received and sold in London 32,975 skins of this species from 1853 to 1877. The returns were lowest in the years 1857 (923), 1866 (909), and 1867 (768). The three best sales of skins in the statement were in 1871 (1,848), 1873 (2,095), and 1874 (1,763). The sales for 1902 and 1903 amounted to only 635 and 695 skins, respectively. It is estimated that the old northern districts of Athabasca and Mackenzie River furnished fully two-fifths of the foregoing quantities.

As the habits and depredations of this "uncivilized robber" have already been fully and frequently recounted by naturalists, I need not add to its well-known record. I may, however, say that copulation of the sexes takes place in the months of March and April, and that the female brings forth the offspring about sixty days later. They are from one to three, four, and occasionally as many as five, in number. They are said to be born blind, and are very frail for some time, but soon acquire more strength. Suckling is supposed to last for two or three months. A discarded beaver-lodge, a vacant bear-hole, or any other suitable depression in the ground, serves as a nest. The male is supposed to render some assistance in rearing the young.

Fortunately for the natives, who suffer so much from his depredations, the carcajou is not very abundant anywhere, although doubtless too much so everywhere, for the reason

that even one will, in course of a single season, do an incredible amount of damage. They are first-class experts in persistently demolishing very extensive lines of deadfall, marten, and other traps, as well as in hiding, eating, or otherwise injuring the animals found in them. They treat rabbits and lynx caught in snares in a similar manner. They will further break up well-built caches of meat, fish, and sundries. The wolverine is undoubtedly entitled to first place among the destructive animals of North America, and is also the most detested of them all.

FISHER—*Mustela pennanti* (Erxleben).

It is very seldom, indeed, that an example of this species is found beyond latitude 62° north in the Mackenzie River region, or any other part of America. I never knew of any being taken at Fort Simpson, while the very few skins received there were trapped by Indians in the forest country some distance to the south; but on the upper Peace River, and in the country farther south, east, and west, on both sides of the Rocky Mountains, the fisher is fairly numerous.

The male and female are said to come together annually in the months of February, March, or April, according to locality, and the offspring vary between one and five in number. They are born blind and helpless, but soon acquire sight and strength. They nest in a hole in the ground. Some say the male assists in rearing the young, but others deny this assertion. They subsist on rabbits, fish, and mice. Mr. Colin Thomson states that for winter consumption they provide quantities of "hips" in advance.

It may be mentioned that from 1863 to 1883 Mackenzie River District traded the skins of 331 fishers. More than three-fourths were obtained from Indians resorting to Fort Resolution who hunt to the south of Great Slave Lake, as well as along the Slave River, the balance coming from natives belonging to Forts Simpson, Providence, Liard, Hal-

kett (abandoned) and Nelson. The last post (latitude 59° north) had one skin for each of the outfits 1886, 1887, and 1889. Fort Providence had one and Fort Simpson six examples in 1889. For the period 1858 to 1884, Athabasca District turned out 5,138 fishers. The average trade for the five succeeding outfits (1885 to 1889) would be about 100 skins less a year, after making due allowance for the gain by the Resolution transfer and the loss of the four upper Peace River posts (constituted a new district in 1878). The contribution of the latter for 1889 was 122. That of the stations added thereto (taken from Edmonton) was as follows: White Fish Lake gave 33, Sturgeon Lake 20, Trout Lake 20, and Lesser Slave Lake 61 skins for the same year. English River District, by its posts at Isle à la Crosse, Portage la Loche, and Green Lake supplied 63, 18 and 48 skins, respectively, for 1889, and 22, 19, and 31 skins, respectively, in 1890. The district of New Caledonia, British Columbia, gave an average of about 300 skins a year for the years 1885 to 1889, while Fort St. James, Stuart Lake, and Fraser Lake always headed the list in nearly equal quantities; the other posts, except Babine, made up the balance with much smaller quotas. Then we have Cumberland District, with a total of 195 skins for 1888 and 216 in 1889; but with the exception that Cumberland House had 51 and 42 skins for the two years, respectively, I can not give details as to where the rest of the lots came from. Mr. P. Deschambeault never saw a single fisher during his fifteen years in charge of Lac du Brochêt, Reindeer Lake.

While the annual London sales for the first twenty years, 1853 to 1872, ranged between the minimum, 4,605 for 1866, and the maximum, 7,959 in 1870, the sales of the last five, 1873 to 1877, only amounted to 3,639, 3,539, 3,558, 3,263, and 3,338 skins, respectively. The three best sales of the series were 7,197 for 1860, 7,477 in 1869, and 7,959 in 1870; and the three lowest were 1875 with 3,558, 1876 with 3,263, and 1877 with 3,338, as above men-

tioned. In 1902 the Company sold 3,679, and in 1903 3,223 skins, making a grand total of 144,107 for the twenty-seven years in question. Judging from the northern department returns for outfit 1865 (sold in London in 1867) I think that about two-fifths or more of the fishers appearing in the Company's annual fur catalogue must have been obtained from the western, southern, and Montreal departments, of the Hudson Bay service.

MARTEN—*Mustela americana abieticola* (Preble).

This is probably the most constant of the "periodic" fur-bearing animals, whose presence in considerable numbers is very largely dependent upon a greater abundance of hares or rabbits, though mice also form an important item of marten diet. The remarks made under *Lynx* in this regard have a similar, but somewhat modified, application to this American representative of the Russian sable. In years of plenty the marten is very numerous throughout the entire northern forest region; but it is not uniformly so at the same time in every section of country all over the immense territories covered by the Hudson's Bay Company's trading operations. When it is abundant or scarce, say in the northern and western departments, it will generally be found that there is an important and corresponding increase or decrease in the southern and Montreal departments. The natives maintain that lynxes and martens migrate from the north and west to the east and south, and that when they have attained their height in numbers for several seasons the great bulk (no section is ever totally devoid of martens) of those who escape capture resume the return march until the next period of protracted migration. It must be admitted that many old fur traders have come to entertain similar views from their own personal experience and observation. Of course there are post, district, and departmental fluctuations in annual results, caused by local epidemics among the hunters and

other relative reasons, but, on the whole, I think the aforesaid twenty-five years' London sales statement adds strength to the migration theory, and is otherwise of some interest. If it were possible, however, to obtain from the London executive a complete abstract of all the furs and peltries annually disposed of by the Hudson's Bay Company since the union with the Northwest Company of Montreal in 1821, to 1903, a period of eighty-two years, this opinion would probably receive further confirmation.

In this connection, native allegation in respect to a corresponding increase and decrease in the birth-rate of the marten and other "periodic" and migratory species may be worthy of a little attention from interested naturalists. The following comparison of the yearly London sales of this pelt may help any such in enabling them to arrive at a better understanding of the subject, and for this purpose sales exceeding 100,000 will be classified as "good" and under that figure as "lean" years. To begin with, we have two of the latter—1853 with a sale of 73,050 skins, and 1854 with 91,882. I have reason to believe that the three preceding years (1852, 1851, and 1850) would come under the same grouping, while the five previous (1849, 1848, 1847, 1846, and 1845) should be considered as "good" years. Then we have six of the same description, two of which, 1856 with 179,736, and 1857 with 171,022 skins, were probably the best ever realized by the Hudson's Bay Company from incorporation in 1670 to the present time. The other four "good" years' sales were 137,009 skins in 1855, 138,535 in 1858, 139,124 in 1859, and 102,235 in 1860. These six years were succeeded by only three "lean" years (1861 with 74,738, 1862 with 80,484, and 1863 with 79,979), which were immediately followed by five "good" years—1864 with 112,396, 1865 with 124,830, 1866 with 142,970, 1867 with 126,616, and 1868 with 106,784 skins. Then came no less than eight successive "lean" years' sales (1869 to 1877), having but one bright break, in 1875, when

the sale amounted to 131,170 skins. I think the best since the transfer of the country to Canada was in 1870. The total for each of the eight years last mentioned was 81,706, 52,308, 55,453, 60,455, 66,841, 66,750, 83,439, and 81,174, respectively. The aggregate total sales of martens for the twenty-five years amounted to no less than 2,590,691 skins. In 1902, the Company sold 56,491, and in 1903, 76,629 marten skins in London.

The two best and most successful months for the trapping of this valuable animal are November and March, while comparatively few are taken during December, January, February, and April. Severely cold weather is not a favourable factor in hunting, for the reason that at such times martens do not roam as much as on other occasions. The sexes begin to copulate in February, and the process is continued to the end of March, according to situation or other circumstances. For some time afterwards, martens are more easily captured than at almost any other period of the season. The young are blind and helpless when born, but shortly acquire sight and strength. They make their nests in hollow trees, or under fallen timber, and in holes in the ground.

Comparatively few skins were obtained from the country north of Fort Anderson, but in the forest region to the south martens were fairly abundant in some years. The writer has seen several albino examples, and also a considerable number of bright yellow and dark orange colored martens in his time, particularly while stationed in the districts of Mackenzie River and Athabasca. In the month of February, 1890, Albert Flett, then chief of the Cumberland House band of Cree Indians, brought me a large male marten somewhat different from any that I had previously met with or specially noticed. After it was properly skinned and prepared, it was forwarded to the Smithsonian Institution at Washington. I think the chief told me that he had trapped it in the Pas Mountain, some 60 or 70 miles to the southward of Cumberland House. He also informed me that he had seen several

animals captured in the same quarter. It is now described under *Mustela americana albiaticola*, subsp. nov., Hudson Bay Marten, in "North American Fauna," No. 22, 1902, by that zealous naturalist, Mr. Edward A. Preble, of the U. S. Biological Survey.

WEASEL—ERMINE—*Putorius arcticus* Merriam, *P. cicognanii* (Bonaparte), and *P. cicognanii richardsonii* (Bonaparte).

I believe the weasel extends to the north of Fort Anderson, where several specimens were obtained from the natives in course of our five years' residence from 1861 to 1866. The Eskimos of the Lower Mackenzie and Anderson rivers use the skin of the weasel very largely in their conjuring and other religious exercises. It may be here mentioned that ermines are not particularly abundant within the Arctic Circle, although there, as elsewhere throughout the wooded country, they are more numerous some seasons than others. Doctor Armstrong refers to the presence of one of these species on Baring Land. Sir James Ross says they are fairly abundant at Boothia Felix, where they feed mainly on lemmings. Sir George Nares observed many ermines where he wintered in 1875-76. General Greely also secured eight examples on Grinnell Land, and gives latitude $82^{\circ} 36'$ north as about their highest range in that polar quarter.

Quite a large number of specimens of these animals were obtained at Fort Anderson from the Eskimos, as well as from the Indians, and a few were captured in the stores and in the vicinity of the place. They range to the shores of the American coast. Ross, Nares, Greely, and Doctor Armstrong refer to these species in their respective Arctic exploring volumes. The female gives birth to her young, from four to eight, and sometimes as many as nine and ten, in May and June, annually. They are said to be blind and very helpless when born, and so continue for some time after-

wards. Although ermines no doubt destroy some food themselves, yet when one manages to get inside a Hudson's Bay inland store, it soon makes a clean sweep of field or other mice, which frequently do a considerable amount of damage by devouring and concealing meat and other eatables, and in cutting up cloth and goods. A domestic cat seldom evades death from native dogs. In May, 1885, a skin of this species was forwarded from Fort Chipewyan, Athabasca, to Dr. Robert Bell, of Ottawa; and in July, 1889, three trade specimens from Babine Lake, British Columbia, were sent to Washington. It is fairly abundant in New Caledonia District. The Hudson's Bay Company now annually trades and exports to England many thousand ermine skins; but for several decades previous to 1887 the prices obtained for them were not remunerative, and their hunting was not therefore encouraged. Jubilee and coronation functions have, however, brought them once more to the front, to the advantage of the hunter, the trader, and the seller. From 1853 to 1877, inclusive, the Company's average London sales of ermines amounted to 2,476-skins a year. The five best years were 1873 with 4,012, 1874 with 4,447, 1875 with 4,732, 1876 with 5,360, and 1877 with 5,338; and the five lowest, 1858 with 1,034, 1859 with 809, 1862 with 912, 1863 with 1,178, and 1864 with 899. As against all this, the sale of 1902 reached 16,374, and that of 1903, 33,883 skins.

MINK—*Lutreola vison lacustris* Preble.

The mink is one of the Company's staple pelts, and although it is but very slightly dependent on the American hare for food, yet it somehow seems to periodically augment and decrease in numbers much in the same way, not perhaps as precise, but still in a remarkably interesting manner. If we adopt a minimum of 50,000 and under as a "lean" unit, and sales above that figure as "good," as was done in the case of the marten sales, we may better understand this. The sales of the years 1853 and 1854 were 25,152 and

42,375 skins, respectively. There is reason to believe that the sales of the three previous years were below the average. Then came five "good" years in succession, 1855 with 50,839, 1856 with 61,581, 1857 with 61,951, 1858 with 76,231, and 1859 with 62,264 skins. Next we have four "lean" sales, 1860 with 44,730, 1861 with 31,094, 1862 with 49,452, and 1863 with 43,961 skins. These were followed by six "good" years—1864 to 1869—with 61,727, 60,334, 51,404, 58,451, 73,575, and 74,343 skins, respectively. Once more we have four "lean" sales, 1870 with 27,708, 1871 with 31,985, 1872 with 39,266, and 1873 with 44,740 skins. The year 1858, already mentioned, with 76,231, 1876 with 79,214 (maximum), and 1877 with 79,060 skins were the three largest years' sales for the period under review. The total output of minks, exclusive of some 15,000 skins sold in Montreal and St. Paul, was 1,374,139. The London sales of 1902 comprised 57,349, and those of 1903, 66,360 skins.

This animal is to be found along the Anderson and other Arctic rivers to the coast, and also throughout the Dominion of Canada from the Atlantic to the Pacific. The sexes come together in March and April, and the female brings forth in due time five or six blind and helpless little ones. I have also been assured that where the food conditions are very good, instances of as many as eight, ten, and even twelve have been observed. In this connection I would remark that Indians in different parts of this vast country have asserted that when the several periodical fur-bearing animals are at a minimum stage the births are few, but that these augment annually in number during the seasons of increase. This rather remarkable, but probable circumstance, applies particularly to musquash, martens, minks, ermines, foxes, and skunks. A number of hunters have also said to me that they have sometimes noticed this peculiarity in the case of beaver. Albinos are rare, but the writer has seen a few in the course of his forty years' service.

SKUNK—*Mephitis hudsonica* (Richardson).

I believe that a few straggling individuals have been met with as far north as the Upper Peace, the Lower Athabasca, and the Upper Slave Rivers, but I never heard of any having been discovered in the Mackenzie River District, or beyond Great Slave Lake. Chief Trader B. R. Ross, however, found the bones and part of the skin of a skunk at a short distance from the south shore of that great inland sea. As already indicated, this is one of the herein-designated "periodic" species. The statement of sales in London rather corroborates this view, although perhaps not in as exact a manner as under martens and minks. First, we have 1,619 skins for 1853, then seven successive "good" years, ranging from the lowest (4,474 in 1854) to the highest (11,320 in 1856) for the entire period of twenty-five years. These were followed by seven "lean" years (1861 to 1867) with from 1,617 for 1865 to 3,758 in 1861. After that three more "good" years, 6,208 in 1868, 6,679 in 1869, and 9,606 in 1870. Then we finish the list with seven poor seasons from 1871 to 1877, varying between 1,322 in 1874 and 3,928 in 1877. I regret that I am unable to furnish details of the later sales, except for the years 1888, 1902, and 1903, and they consisted of 16,322, 5,682 and 5,206 skins, respectively. There is no record of the trade of even one example of this fur-bearing animal in the Athabasca or Peace River Districts for ~~over~~ thirty years subsequent to 1858, nor, I believe, previously; but from its former Edmonton posts to the south some skins have since been obtained. In 1889, Lesser Slave Lake gave 62, Sturgeon Lake 3, Trout Lake 2, and Whitefish Lake 20 skins; English River District, to the south-east of Athabasca, turned out 461 skins in 1889 and 207 in 1890, most of which were purchased from Indians resorting to Isle à la Crosse and Green Lake. Portage la Loche had but 11 and 14 skins, respectively, for those outfits. At Fort St. James, Stuart Lake, British Columbia, the Company traded 6 skunks in 1887, 23 in 1888, and 61 in 1889.

Fraser Lake post contributed about one-half of the number. It is said that the sexes come together in the months of February and March, and that the female produces from four to seven young, which for a time are blind and rather weak and helpless. In May, 1885, I sent the skins of two young skunks, secured shortly before by an Indian near Fort Chipewyan, Lake Athabasca, and captured south of the place, to Dr. Robert Bell, of the Canada Geological Survey at Ottawa.

BADGER—*Taxidea taxus* (Schreber).

Sir John Richardson gives latitude 55° north as the limit of this animal's northern range. It used to be fairly abundant in the prairie regions, but as these are settled it is gradually diminishing in numbers. If it ever extended as far as the Peace River it must have been many years ago, as not a single example has been traded by the Company in that quarter since 1858 (I have no earlier data), but elsewhere to the south they collected a total of 39,579 skins between 1853 and 1877. The best three years were 1870 with 2,445, 1873 with 2,705, and 1876 with 2,274 skins and the three lowest 1854 with 886, 1857 with 871, and 1867 with only 597 skins. In 1902 and 1903, respectively, the London sales amounted to 1,141 and 824 skins.

The female badger has from three to five at a birth, and they are said to be, like most mammals, born blind and helpless. Mr. Donald Gunn, of the Red River Settlement, Manitoba, was misinformed when he wrote that the Indian name for badger was Weenusk. This, I believe, is the native (Cree) name for *Arctomys monax*, and Mistunusk for the badger. In 1889, Isle à la Crosse and Green Lake each traded one badger skin, and the latter one also in 1890.

RACCOON—*Procyon lotor* (Linnæus).

According to the Company's twenty-five years' statement (1853-1877), they sold a total of 99,179 raccoon skins in the

London market. During that period there were only six years when the annual sales exceeded the average (3,967), and they varied between 4,011 in 1872 and 11,678 in 1867, with 21,321 for 1868 as the maximum. The remaining nineteen years ranged from the minimum (1,042) in 1877 to 3,883 in 1863, the maximum. Strange to say, there is not one raccoon entered in the Dominion Senatorial report of the Lampson's and Hudson's Bay Company's fur catalogues for the year 1887. In the latter's catalogue for 1902, however, we have 1,967 and in that for 1903, 1,024 skins. I understand that this species is, now, at least, very rare in the north-west of Canada while it is probable that most of the foregoing returns were obtained in other sections of the country, to the west, south, and eastward. In the second volume of Audubon and Bachman's Quadrupeds of North America, Audubon has given us a full and interesting account of the habits of this species. As to its northern and western distribution, he quotes from Sir John Richardson and others. The former supposed that the raccoon extended farther north on the shores of the Pacific than it does on the eastern side of the Rocky Mountains. Dixon and Pastlock confirm this, as they obtained skins from the natives of Cook River, in latitude 60° north. Richardson further states that the Company procured about 100 skins from the southern parts of the fur districts, as far north as the Red River, in latitude 50° north. It is said to hibernate for a portion, if not most of the winter. The young, usually from four to six in number, are quite small at their birth, which generally takes place in May, though varying with the range.

LAND OTTER—*Lutra canadensis* (Schreber).

The Canada otter is but very sparingly present on the lower Anderson, nor could it be truthfully stated that it was very abundant in the far north; still, it is generally met

with in every locality adapted to its requirements. There are seasons also when, for natural reasons beyond our knowledge, it is more markedly numerous in certain sections of the country than is usually the case; but the very extraordinary statements made by Bell that there were imported into England 713,115 skins of the American otter in 1830, 494,067 in 1831, and 222,493 in 1832, must be enormously exaggerated. As only 23,889 is the total given for 1833, the other figures must surely be grossly incorrect. The Company's aggregate sales for the twenty-five years previous to 1878 only amount to 318,140, or an average of about 12,723 skins a year. In March, 1888, they sold 11,588; in the same month of 1902, 8,675, and 10,273 in 1903. The three best years of said period were 1864 with 15,443, 1866 with 18,380, and 1867 with 15,271, and the three lowest, 1853 with 8,991 1874 with 9,010, and 1877 with 9,926 skins. In fifteen years (1863-1877) of the aforesaid twenty-five, Mackenzie River District supplied 1,984, and the Athabasca District in twenty years (1858-1877) supplied 4,861 skins toward the above grand total. The Mackenzie River contribution by Fort Resolution, Great Slave Lake, was 427 for the same period.

By widely separated hunters, this animal is said to mate during the months of March, April, and May. The offspring are from three to five in number. One informant says they are born with their eyes wide open, but all the others assert the contrary. Richardson mentions that the female has one litter of from one to three annually in April; but Indians in the far north (in New Caledonia, British Columbia, on the Peace and Saskatchewan Rivers) vary in their several accounts. Traces of its "sliding," or travels from one stream to another over the winter snow, have been frequently observed, and as a result some—not all—of those seen are shot or run down and bludgeoned. I never, however, heard of any instance in keeping with Godman's "otter-sport" sliding amusement.

GRAY SEA-OTTER—*Lutra lutris* (Linnæus).

During the oft-mentioned twenty-five years the Hudson's Bay Company obtained from the natives of Alaska and northern British Columbia a total of 4,100 skins of this formerly abundant but now rare and very valuable sea-otter. The three best years were 1855, which produced 338 skins; 1856, 319 skins, and 1858, 343 skins; and the three poor seasons were 1862 with 84, 1870 with 90, and 1872 with only 66 pelts. Their London catalogue sales for 1902 and 1903 seen by me do not contain a single entry of this animal.

GRIZZLY BEAR—*Ursus horribilis* Ord.

There are no bears of this species in the Anderson River country, nor on the adjoining Arctic coast, but I believe they are sometimes encountered, and their skins secured, in other parts of the northern districts on the west side of the valley of the Mackenzie to the Rocky Mountains. The female, it is said, brings forth one or two, and occasionally as many as three, at a birth, every third year. The first few years are always spent by them in their mother's company, after which they are expected to provide food, a mate, and hibernating quarters for themselves. Comparatively few skins of this bear are received from the Indians, and they, together with most of those of *U. richardsoni*, figure under *gray* in the Company's accounts. As all of the four kinds—black, brown, gray, and white—are grouped together in the fur sales statement, it is impossible to give the quantities of each for the period in question; but the catalogues for 1902 and 1903 furnish details, while their totals are only 143 skins below the average collections for the twenty-five years. The year 1902 yielded 161, and 1903, 246 skins of the "gray" bear. For fifteen of the twenty-five years (1863 to 1877) Mackenzie River District furnished 665 "gray" bears. There are no available data for a similar period for Athabasca; but in 1886, 1887, and 1889, 68 more skins

were obtained from that district, while the posts on Upper Peace River gave 35 skins of the bears designated above. The adjoining district of New Caledonia, on the west side of the Rockies, also contributed a certain number of skins of this species to each year's London sales. Mr. Moberly, who spent several years in British Columbia, says that he was credibly informed that many years ago grizzly bears were occasionally met with in the Pas Mountain of Cumberland District and amid the Touchwood Hills of Manitoba; but such is not the case now. He further says:

There seems to me to be a different species in the Rocky Mountains. They are much larger than any other grizzly bears seen on either side. Their colour is lighter and they have a whitish mane, and are much more ferocious, but not so numerous as the others. Indian hunters readily attack the latter; few, however, will willingly venture on a contest with the Mountain King unless the chances are very favourable.

It is also on record that the grizzly bear, as well as the black bear, were not uncommon to the eastward and in certain other wooded sections of the Red River Valley at the end of the eighteenth and beginning of the nineteenth century.

RICHARDSON'S BARREN GROUND BEAR—*Ursus richardsoni* Swainson.

This bear is not uncommon in the Barren Grounds of the Anderson region nor on the polar shores of Franklin Bay, where, apart from a few exported skins, we annually secured during our five years' sojourn at Fort Anderson one or two examples, with the skulls and skeletons suitable for museum purposes. The characteristic disposition of this rather formidable animal may be fairly judged from the following experience: In the end of July, 1862, an Indian brought in the skin, skull, and leg-bones of a medium-sized male which he shot in the Barren Grounds north-east of the

post. He informed us that as soon as the bear perceived him, it at once advanced toward him, and when at a few yards distance, he fired at and killed it. On the 8th of the same month an Eskimo secured a large male on the east side of the Lower Anderson, about 50 miles north of the fort. The first shot struck and broke one of its hind legs, which greatly angered the bear, which fiercely pursued its assailant; but a second ball fortunately laid it low in rather close proximity to his person. Again, on June 30, 1863, a member of our Indian collecting party succeeded in killing a very large male on the shores of Franklin Bay. From a high and narrow shelving ridge near the head of a deep ravine, he observed the bear at some distance below, and in order to attract its attention he began to whistle and throw stones at it, much to master bruin's disgust, and it immediately started to ascend to where the Indian from his chosen vantage ground stood prepared to receive it. After permitting it to approach within 10 or 12 feet he fired at and mortally wounded it, but to make his work sure he at once rushed out and drove his knife to the hilt in the bear's heart. The skin and complete skeleton of this animal were secured and forwarded the following summer to the Smithsonian Institution at Washington. About three weeks previous to our arrival at Franklin Bay, in the end of June, 1864, two Eskimo hunters observed a brown bear at some distance, and being, for them, well armed, they went forward to meet it and did their best to annoy it by uttering very loud and shrill cries. They made a stop, however, at a driftwood stand, shortly before constructed by them for the purpose of shooting therefrom at passing ducks, geese, and swans, and there prepared for action. One of them carried a Hudson's Bay single-barrelled flintlock gun, and the other had a spear formed by firmly attaching a long knife of Eskimo make to the end of a somewhat slender pole about 6 feet in length. When the bear had closely approached them, it was shot and severely wounded, which, of course, made it per-

fectly furious, and it came on so very quickly that there was no time to reload the gun; but just as it was about to spring at and close with the man who had fired the gun at it, the other man struck fiercely at it with his spear, and both soon dispatched it with their knives. This animal will not only hug, and if possible crush, any unfortunate falling into its clutches, but will also bite with its sharp teeth and scratch viciously with its powerful claws, as Indians and Eskimos have occasionally experienced to their cost. In the spring of 1864, one of the leading men of the Mackenzie River Eskimos, while hunting with a comrade on the slopes of a high sea-bank, was suddenly attacked, knocked over, and severely bitten by a large male, which would doubtless have speedily finished him had not his companion, who happened to be near by, killed the bear by a quick and well-directed knife thrust. Another instance of biting occurred in the Anderson Barren Grounds in the month of August in the same year. An Indian on a hunting tour observed an animal of this species, which he determined to shoot, reposing on the top of a knoll, but to make sure of his quarry he crawled quite close to it, and on pulling the trigger of his gun it unfortunately snapped; but the sound awoke the bear and before the Indian could draw his knife he was thrown down, and the bear at once began to bite him in the shoulders, arms, and legs; but for some unknown reason it soon desisted and disappeared, leaving the poor fellow in a badly mutilated and helpless condition. Luckily for him, his friends missed him and a search was made which resulted in his discovery; he was then taken on to his own lodge, not far away, where he was carefully attended to; but some three or four months elapsed before he recovered sufficiently to be able to hunt again, and he will no doubt carry the scars of the wounds of his very narrow escape from death to his grave. The wonder is that he was not killed outright.

Early in the morning of July 15, 1865, as I was in my tent, emptying some birds' eggs gathered the previous day a

few miles east of the Wilmot Horton River, I noticed the countenance of an Indian assistant who was at the door suddenly change colour and exhibit much fear. I asked him what ailed him, and he muttered "*sass*," which is the Chipewyan general term for bear. I got up immediately, looked out, and with much delight saw what under the peculiarly hazy mirage of the hour, when objects not far away appear comparatively gigantic, one enormous and two young Barren Ground bears coming direct for our camp. I at once roused up our best shots and made ready to accord them a very warm reception; but just as they were about arriving within range of our muzzle-loaders (there were no breech-loading rifles in those days) the mother bear perceived the tent as well as our crouched party, which, under the stated atmospheric conditions must have struck her with fearful astonishment, as she instantly got up on her haunches, a proceeding followed by her offspring (over two years old). After having a fairly good look at us, they all bolted, while apparently not one of the dozen balls fired at them went home, as they scampered away at a rapid pace and so escaped. On the succeeding evening, another large animal was seen and he appeared to be making right for our encampment; but although he was allowed to approach quite close, we failed to secure him. On another occasion, several of our Indian hunters observed a bear busily engaged in feeding on the carcase of a reindeer, which had probably died from the effects of a bullet-wound received a short time previously on the Arctic coast, near Langton Harbour, Franklin Bay. As soon as they were noticed he got up on his hind legs, and after a square look at them, decided to retire, and succeeded in doing so scathless.

Sir John Richardson states, in his "Boat Voyage in Search of Admiral Franklin," that Chief Trader John Bell informed him of the melancholy death of an Indian in the vicinity of Fort Good Hope. "This poor man having set several snares for bears went to visit them alone. The event

showed that he had found a large bear, caught by the head and leg, and endeavoured to kill it with arrows, several of which he shot into the neck of the animal. He seems to have been afraid to approach near enough to give full effect to his weapons, and the enraged bear, having broken the snare, flew upon him and tore him in pieces. The man's son, a youth of about sixteen years of age, becoming alarmed by the lengthened absence of his father, took his gun and went in quest of him, following his track. On approaching the scene of the tragedy the bear hastened to attack him also, but was shot by the lad as he was rushing at him. The boy found his father torn limb from limb and mostly eaten, except the head, which remained entire. The bear, whose carcass was seen by Mr. Bell, was a brown one of great size. Fragments of the snare remained about his neck and leg. These brown bears are very powerful, and the same gentleman who told me the foregoing informed me that on the Porcupine River, to the west of the Peel, he saw the footmarks of a large one which, having seized a moose deer in the river, had dragged it about a quarter of a mile along the sandy banks, and afterwards devoured it all but part of the hindquarters. The bones were crushed and broken by the animal's teeth, and from their size and hardness Mr. Bell judged the moose to have been upwards of a year old, when it would weigh as much as an ox of the same age. The species of these northern brown bears is as yet undetermined. They greatly resemble the *Ursus arctos* of the European continent, if they are not actually the same, and are stronger and more carnivorous than the black bears (*Ursus americanus*), which also frequent the Mackenzie River region. The grizzly bears (*Ursus horribilis*) reach the same latitudes, but do not generally descend from the Rocky Mountains."

From all that has been narrated herein, I think it will be readily admitted that the male, at least, of *Ursus richardsoni* is a bold and courageous animal, and when wounded is quite as brave and formidable an antag-

onist on his own grounds as his cousin, the true mountain grizzly, is in his territory. The female is doubtless less aggressive except when defending her young. Nearly all these referred to were males. The Indians say that the females give birth to one or two cubs every third year, and that the young keep company and hibernate for two seasons in the same shelter-hole or cave with their mother. The paunches of the bears secured by us were mostly full of various edible roots, and one or two contained some partially-digested venison. Exclusive of a comparatively small number of skins shipped as trade returns of the post, I may mention that the Smithsonian Institution received several examples of the full-grown and some spring cubs of the male and female of the Barren Ground bear. A. G. Dallas, Esq., then resident governor-in-chief of the Hudson's Bay Company, had a fine large mountable specimen sent to him by request. A similar sample was also forwarded to Prince Jerome Napoleon, of France. The former was secured in 1863 and the latter in 1864. I have not noticed any reference to the presence of this or the other species of bear on the lands to the north of the American coast visited by the different Arctic expeditions.

BLACK BEAR—*Ursus americanus* Pallas.

The black bear is not at all common within the Arctic portion of the Anderson River, but in the forest country to the south on both sides of the valley it is fairly abundant. It subsists chiefly on roots, edible grasses, berries, and green leaves, and on stranded fish and dead animals when procurable. The Indians occasionally kill a male or female bear which has neglected to hibernate, or for some unknown reason has left its winter shelter, and such examples are generally in a more or less impoverished condition, while many of the "winterers" are still quite fat as late as March and April when shot or speared in their holes or caves. In

the far north, one and two, but rarely three, young are produced at a birth; but the Indians of New Caledonia district, British Columbia, have assured me that two, three, and four at a time are events there of rather frequent occurrence, and that even as many as five have been occasionally observed. This difference in prolificness may be owing to the fact that while roots and berries may be equally abundant in both sections of country, salmon are very abundant in their season and easily accessible in the western spawning rivers and streams, and they, for the time, form the chief item of diet of the bears. The young usually hibernate two seasons with their mother, after which they are rather harshly repulsed by her and thereby made to understand that they must set up house and provide for themselves. This course would indicate that they breed only every third year, while some Athabascan Indians thought they did so each alternate spring. In this connection I would mention that the Carrier Indians of Stuart Lake, British Columbia, have told me that it was an event of the utmost rarity (one such occurred in the spring of 1889) to kill a hibernating bear with unborn young. Even when attacked in their winter shelters, they will almost invariably manage to abort the young, if not already in existence, immediately on becoming aware of the near presence of men with deadly intentions. During the rutting season, the males of all bears are always more ferocious than on other ordinary occasions. They frequently fight together until one submits, nor will they hesitate to attack any man they may meet at such times. When bears quit their winter quarters, they usually resort, morning and evening, to the nearest stream and feed on the small fish. They also eat roots, etc., as already mentioned. When wounded they are said to utter a cry and moan in pain much as most men would do under similar circumstances. This is particularly the case with the black bear. They are taken in snares, shot, and captured in deadfall and powerful steel traps. The Indians themselves cannot account satis-

factorily for the recurring seasons of exceptional scarcity of bears in certain regularly-occupied tracts. If the bears perished by disease, or even starved to death—a very unusual occurrence—they think that they should sometimes come across their remains in their many hunting peregrinations, if only for the reason that relics of a badly wounded animal are almost invariably discovered sooner or later in the vicinity of the locality where it was shot. Migration, therefore, seems the most reasonable solution of the difficulty. Remarks as to food, habits, and distribution, but not numbers, made under this heading are equally applicable to *U. cinnameus*, the skins of which are usually described as “brown” in the Company’s lists.

For the reasons already given under *U. horribilis*, I am unable to show the quantities of each color sold in London for the period from 1853 to 1878, but with the aid of the following data a fairly correct estimate of the proportion of black and brown bears collected in the northern districts, at least, may be formed, namely: From 1863 to 1883, Mackenzie River District furnished a total of 906 black and 571 brown, and for 1886, 1887, and 1889, 1,678 black and 183 brown skins. The posts of old Athabasca produced 712 black and 70 brown in outfit 1889. Then come the London catalogues for 1902, with 7,087 black and 161 brown, and 1903, with 6,444 black and 246 brown bears. In the twenty-five years’ statement, all the bears are grouped together under one heading, and they aggregate a total of 200,042, or an average of nearly 8,002 a year. The bear returns for the two years 1902 and 1903 are only 143 skins below this average, while the competition in the fur trade during the last three decades has been far and away the greatest in its history since the coalition with the Northwest Company in 1821. For twenty-seven years, from 1858 to 1884, inclusive, Athabasca District’s quota to the London sales was 13,997 assorted bears. This total would have been upward of 2,000 larger but for the transfer in 1878 of the posts of Battle

River, Dunvegan, Hudson's Hope, and St. John, with other Edmonton fur-trade stations, to constitute the Company's new district of Peace River, which, for outfit 1889, turned out 500 black, 67 brown, and 38 gray bears. For the five years 1885 to 1889, New Caledonia District, British Columbia, supplied 1,602 assorted bears, and in 1889, 333 black, 11 brown and 21 gray, as against 412 black, 22 brown, and 20 gray shipped the year previous. I may mention in conclusion that the English River District, next on the south-east of Athabasca, traded 283 black and 64 brown in outfit 1889, and in 1890, 399 black, 120 brown, and 1 gray bear skins.

POLAR BEAR—*Thalarctos maritimus* (Phipps).

With the exception of a few trade skins annually received from the Eskimos during our five years' residence at Fort Anderson, we secured but three assorted examples of this bear, which were forwarded to Washington. One of them, the best, was shot in Liverpool Bay, and the other two, I think, were killed near the outlet of the Wilmot Horton River in the Franklin Bay. The Eskimo who brought us the latter stated that he and a companion were watching for passing ducks and geese in a small sheltered, but open, stand, which they had built with blocks or slabs of hard frozen snow close to the shore, when they saw a large white bear coming from the sea in their direction. They permitted it to almost reach them before one of them fired at and wounded it very severely, while the other soon finished it with his spear. The second animal was killed later in the same spring (1865) in a similar manner.

The writer of these notes entered the service of the Hudson's Bay Company on June 25, 1852. We embarked in the Company's sailing ship *Prince of Wales* (Capt. David Herd) at Stromness, Orkney, on the 3rd of July, and reached York Factory, Hudson Bay, on the 15th day of August following. While retarded in the navigation of Hudson Strait by large fields of drifting ice, a full-grown polar

bear was observed from the ship, and as the captain was desirous of procuring a suitable specimen, he ordered his chief mate, John Hackland, to lower and man one of the boats for this purpose. The Company's surgeon (H. S. Beddome) with several of the cabin passengers, myself included, obtained permission to accompany him. As soon as bruin perceived the boat proceeding in his direction, instead of being scared, he boldly advanced to meet us, and we were therefore not long in coming to close quarters. A couple of shots were fired at him, one of which evidently struck home, as he immediately turned tail and set off at a rapid and much blood-marked pace over the ice. After a hot pursuit we gave up the chase, as it was impossible to follow him with the boat or on the moving masses of floating ice. We then returned to the ship greatly disappointed at the loss of such a fine animal. Next morning another bear was seen, but at a considerable distance; but we were more fortunate on a subsequent occasion, while we were similarly delayed by ice near the centre of Hudson Bay. This attempt by the same boat party was crowned by the capture of a much larger polar bear than Captain Herd had ever observed in the course of the twenty voyages then made by him between London and York Factory. It was an old veteran, and had evidently participated in many a hard-fought battle for food and love, the proof marks of which were deep and many in number. The last great fight for life was the culminating point of a career which surely entitled him to hold the position of the unquestioned championship of the white bears of Hudson Bay. The sailor in the crow's-nest was the first to perceive the bear, at less than a mile's distance. He appeared to be engaged in a fierce combat with some large animal, which turned out to be the case. When we came up to him he only had had time to partake of a few mouthfuls of the warm flesh of an enormous seal (*Erignathus barbatus*) which had been killed by him after a terrible struggle, evidences of this being plainly visible. He looked as if he was very angry indeed at our unseasonable interruption of

his well-earned dinner, and at the same time determined to stand by his hard-won prize. At first Mr. Hackland thought we might be able to secure him alive, by noosing him with a stout rope while in the water, but soon gave up the idea as too dangerous, and we then, some six or seven men with guns, fired repeatedly at the bear while on the ice and swimming in the sea, at very close quarters; but although many of the bullets went wide of the mark, the shooters being mostly youngsters of little experience, we afterwards ascertained that it had taken a number of penetrating ones to oblige him to crouch down and appear to die. After most of our party had landed on the same large block of ice, in order to take possession of their prey, one of them, with gun still loaded, noticed in time a rather sudden movement of the bear, which might have resulted disastrously had he not been promptly finished by a ball through his head. He had been mortally wounded, but he no doubt feigned death in order to avenge himself, and would probably have succeeded had he not been killed outright as stated. We towed his carcass to the ship, and it was at once hoisted on board and well skinned by expert Greenland whale-fishery men among the crew. He was very fat and heavy. Soon after our return a severe gale sprang up, which enabled us to leave the ice fields for good.

Except for 1902 and 1903, when 170 and 96 skins, respectively, were sold in London, I have no idea of the Company's annual sales of this species. All the skins are obtained from natives of the Arctic coast, Hudson Bay, Ungava, and Labrador. When the North Pole is discovered, as I expect it will be some day, I believe the white bear will be one of the very few mammals found there. I think every Arctic-exploring and Franklin search-expedition refers to the presence of this animal in the polar seas of Greenland and the Dominion. The *Investigator* secured four large specimens in Prince of Wales Strait, and Doctor Armstrong calls Baring Island "the Land of the Polar Bear." Sir Leopold McClintock observed several individuals when drift-

ing with the *Fox* in the pack ice in 1858, at least 110 geographical miles from the nearest land. On the other hand, Doctor Armstrong thought the meeting of an example over one mile inland on Baring Island an interesting and most unusual occurrence. Sir George Nares' party secured several specimens in 1875-76. General Greely obtained several. He writes that they were very rare in Smith Sound north of Cape Sabine. Lieutenant Lockwood, however, saw a polar bear at Cape Benêt, on the Greenland coast, in latitude of $82^{\circ} 24'$ north, which is the most northerly record. Sir Edward Parry, in 1827, observed one on the ice also in latitude $82^{\circ} 24'$ north, to the north of Spitzbergen Island. "On August 18, 1859, while almost becalmed off Cape Burney, a mother polar bear, with two interesting cubs about the size of very large dogs, swam off to the *Fox* and were all shot."

McClintock says that the "veal" of the young appeared among the delicacies of their table, and that Christian had asked him for a portion of the old bear to carry home to his mother in Greenland, where the flesh is considered a real delicacy. He further says that he acquired the arctic acquisition of eating frozen bear's blubber in very thin slices on biscuit, and vastly preferred it to frozen pork. At the time of writing, however, he thought he could not even taste it, but the same privation and sense of starvation from cold, rather than *hunger*, which induced him to eat it *then*, would doubtless enable him again to partake thereof *very kindly*, if similarly "cooked by frost."

PINNIPEDIA.

WALRUS—*Odobæenus rosmarus* (Linnæus) and *O. obesus* (Illiger).

Fifty years ago the walrus was numerous in the northern seas between Point Barrow and Cape Bathurst and to the eastward. On several of our overland bird and egg collecting expeditions from 1862 to 1865 we observed a few individuals basking in the sun on the pack, as well as on large blocks of tide-swayed ice at the southern end of Frank-

lin Bay. The Anderson Eskimos frequently brought into the post for trade various articles made from the ivory tusks of the walrus. Their umiaks, or women's boats, are usually made by sewing the requisite number of hides together and placing them over a frame-work composed of drift timber. The skins are also cut up into stout thongs, which are highly valued, and the best procurable for dog-sled line lashings. Its flesh and oil are greatly prized by the Eskimos. After passing to the east of Point Barrow, Doctor Armstrong was "surprised by seeing numerous herds of walruses (*Trichechus rosmarus*) grouped together on the large detached masses of ice, drifted off from the main pack, apparently asleep or basking in the sunshine. The novelty of a sight so unexpected was gladly welcomed, and various and amusing were the opinions given by the men who had never seen them before as to what they could possibly be, while they gazed in mute wonder and amazement at the strange sight before them. They did not exhibit any feeling of alarm as we approached; one or two could be seen dropping into the water, but it was not until we had got within a few yards of them that, as if by a preconcerted signal, they rolled or tumbled into the sea, and for a time became invisible. They appeared to live in perfect harmony, a lazy, listless air characterizing the whole. I could not but admire the affection displayed by the dam for her young, which were crawling on the maternal back as we approached; but the moment the mothers perceived the danger, they seized them under their arms and disappeared; nor did we see them again at the surface until there existed no cause for alarm. Greenland Arctic seamen consider the 'marine beef' of this animal excellent eating, an opinion concurred in by all medical men who have been engaged in polar explorations."

General Greely gives latitude 79° 40' north as the highest probable range of the walrus. It is indigenous in Hudson Bay and Strait and also in many other portions of the northern ocean.



The Ramparts, Mackenzie River



HARBOUR SEAL—*Phoca vitulina* Linnaeus.

This is probably the most generally distributed and abundant of all the northern species of hair seals. I believe it is also the most numerous in the coast seas of Arctic America. The Anderson and Mackenzie River Eskimos kill a great many annually. It is a very valuable and useful animal for them; its skin is necessary for making boots and hunting canoes and other purposes. Its dark and rather unsightly flesh and extracted oil are among the chief and most esteemed articles in their yearly diet; the latter is also used in their stone lamps for light, heat, and cooking their food. We noticed some seals on the ice, basking in the sun, on each one of our four summer trips (1862 to 1865) to Franklin Bay. The Eskimos with us killed a few with their bows and arrows. Our Indian assistants did not seem to relish the rather disagreeable-looking flesh, but the Eskimos partook thereof with avidity. Doctor Armstrong, of the *Investigator*, observed many and secured several examples of this species in the sea waters of Baring Land. It has also been met with by other Arctic explorers. Sir Leopold McClintock's party secured 17 examples of the smaller seals at Port Kennedy. During their eight months' drift in the pack ice, they killed 73 seals, 2 polar bears, 38 dovebies, and the blue fox already referred to. On March 2, 1858, they shot 4 fat seals and several dovebies; the largest seal weighed 170 pounds and the smallest 150 pounds. They were males of the species *P. hispida*. The flesh of this species is very disagreeable, a garlic-like taint so strongly permeating the whole animal that even Eskimos are nearly overpowered thereby, but the females are at all times free from fœtor. A week later two more seals were captured. The flesh being free from taint, the Eskimos had fried liver and steaks for breakfast, the latter preferred. They had been washed in two or three waters to get rid of the blubber. The flesh was very dark and very tender.

McClintock doubts if seals breed in the drifting pack, as they never saw any cubs during their stay in that risky position. *P. hispida* may also be known to the Eskimos of the northern coast of America. General Greely writes that it is indigenous at Grinnell Land, and that it was met with as high as latitude $82^{\circ} 58'$ north. *P. groenlandica* is also present as far as latitude $81^{\circ} 30'$ north, but he considers it migratory. They secured a number of the several resident species, including 27 examples of *P. hispida*. Sir Edward Parry's highest latitude (attained in 1827) was $82^{\circ} 56'$ north. In a lane of open water in the ice he observed one of the last-mentioned species. This was until recently thought to be the most northerly position ever reached by seals. Mr. Preble noticed a number of skins of this species in the Company's stores at Fort Churchill, Hudson Bay.

From Hudson Bay, Ungava, and Labrador, the Company receive and sell in London annually thousands of hair-seal skins. From 1853 to 1877 the sales aggregated a total of 259,600. The three best years in the series were 1867 with 21,458, 1861 with 18,104, and 1863 with 16,933; and the three lowest, 1853 with 1,425, 1854 with 2,021, and 1855 with 2,842. After a long period of good results, the returns have fallen to only 3,061 skins for 1902, and 2,509 for 1903. There is reason to believe that other species of seals besides the harbour seal are embraced in the foregoing sales statement.

(Some reference to Fort Churchill may not prove out of place among these mammalian notes. Comparatively few of the Canadians of to-day are aware that "upon a rocky spit forming one side, and commanding a splendid harbour, stand the still well-preserved remains of a massive fortification, the most northerly one of British America, scarcely inferior as such even to old Louisburg and early Quebec, its site admirably chosen, its design and armament once perfect, and interesting still as a relic of a by-gone strife, and now only useful as a beacon for the harbour it had failed to protect." Some

day again, however, in the not distant future, when the Hudson Bay Route, now so much decried by many eastern and by a few western "unbelievers," shall have become an accomplished and successful navigable ocean waterway between Canada and Europe, the Imperial Government may consider it advisable to rebuild upon the ruins of the old a new and impregnable "Fort Prince of Wales.")

BEARDED SEAL—*Erignathus barbatus* (Erxleben).

Although we received no whole skins of this species at Fort Anderson, we had every reason to believe that it is an inhabitant of the northern ocean. It is common in Hudson Bay and Strait and along the Alaskan coast from Bristol Bay northward. Ross observed it in Boothia, and it has also been met with by other Arctic explorers, including Nares, and Greely obtained several specimens. The latter gives latitude $81^{\circ} 46'$ north as the highest point where an example (8 feet $2\frac{1}{2}$ inches in length and weighing 640 pounds, gross) was secured. He considers it a summer visitor so far north. McClintock mentions that the Dane, Peterson, shot an example in Bellot Strait which weighed 500 pounds, and that its flesh was preferable to that of the smaller seals. The Eskimos who resorted to Fort Anderson made use of the parchment-dressed skins of this species for their canoes, and occasionally also for their women's boats, instead of that of the walrus. They heartily enjoy partaking of its flesh and oil, no matter how rank it may become by keeping. They can and do eat raw meat and fish; but during the summer season, as well as when living in their winter huts on the coast, they cook the former, and the latter also when fresh, much in the same way as do Indians and others. During our five years' sojourn at Fort Anderson we received large quantities of sun-dried reindeer tongues and venison, in excellent shape for consumption, from the river Eskimos.

FUR SEAL—*Callorhinus alascana* Jordan and Clark.

This valuable marine fur-bearing animal is introduced here, like *Phocæna phocæna*, merely in connection with the Company's receipts of the skins and sale of same in London. There may have been previous collections, but the first record in the "statement" is for 1854, with only 13 pelts; 1855 is but 2 better; then we have 38 for 1856, and 79 for 1857. Next follow 1858 with 116, 1859 with 196, 1860 with 186, 1861 with 176, 1862 with 403, 1863 with 655, and 1864 with 977 pelts. Afterwards the trade has been good, with 2,086 for 1865, and only three years under that figure, while the sales vary between 2,151 and the maximum, 13,620 in 1871, subsequent to which they irregularly decline to 1,588 for 1877. The total for the twenty years is 44,322, or an average of nearly 1,846 skins a year. There is no entry of fur seals in the Hudson Bay catalogues for 1902 and 1903. In recent years, however, the Company's trade of this pelt has practically ceased on the western Pacific coast, but I understand that they now sell on commission the bulk of the yearly catch of the Victoria, British Columbia, sealing fleet.

CETACEA.

WHITE WHALE—*Delphinapterus leucas* (Pallas).

Common in the Arctic Sea and in the estuary of the Mackenzie River, where the Eskimos capture a number every season. Many years ago, it is said, several individuals ascended that river as far as Fort Good Hope. They are abundant in Hudson Bay, where a large number are annually captured at Fort Churchill by servants of the Company; the oil is extracted, duly shipped, and sold in London. The various boat and ship discovery and Franklin Arctic search expeditions have all noticed the presence of white whales in the northern sea under review. Greely gives latitude $81^{\circ} 35'$ north as its most northerly migratory observed range.

On the question of the "North-west Passage" Admiral Sir Edward Belcher, in volume 2, page 258, of his "Last of the Arctic Voyages," writes: "The original act was to reward any persons who, by sailing from sea to sea, proved America to be an island, and at the period the reward was offered it was considered (I speak subject to correction), by the wording of applications to the Treasury, with the assertion 'that great benefit would arise to *commerce*.' Now, when Sir Edward Parry made good his claim, it was for the completion of a *portion* between the meridians undiscovered. The act then, . . . divided the undiscovered spaces into divisional rewards. But inasmuch as Sir John Franklin, Sir John Richardson, Dease and Simpson did not *sail through*, the rewards to which they were *most justly entitled* were *denied*. But to my mind, and to those who are deemed to possess the clearest views in such matters, it has been deemed that the solution of the question (or really that America is sea-washed on its Arctic bounds) would have been incontestably proved had any person passed down Peel's Strait *in open water* and arrived at the positions visited either by Captain Back in former times, or by Doctor Rae on his late journey (1853-54).

"It has therefore been assumed by the friends of Sir John Franklin that his ship did so pass down Peel's Strait, and was wrecked in a position which would entitle him, if living, to contest this matter. And my own opinion goes to favor those who have, by much more hazardous voyages than those made by Parry or his successors, determined the *commercial interests* which may, in consequence of their discoveries, and probably will, be pursued at some future period along that *sea-washed* shore.

"In this connection I would point out that the time has surely arrived for action in respect to these remote and distant shores, as well as to our immense possessions situated to the north of the American Continent. We already know that there are copper deposits of much value up there. Coal has been met with, and no doubt iron and other minerals are also present in some sections. The reindeer and musk ox have numerous representatives. Wolves, foxes, and polar bears are not scarce, while many of the rivers abound in salmon and other fish. In the straits, inlets, and larger bays whales, seals and walrus^{es} are still in abundance, and call for some attention from Canadian fishermen. Nor should it be forgotten that there are many portions of the Canada of to-day fertile and of great metallic wealth, which, but a few decades ago, were considered almost worthless; it would therefore be very unwise to assume and continue to hold similar opinions regarding the

resources of many tracts of vast extent and importance, now virtually despised, which may yet prove of great worth to the Dominion.

GREENLAND WHALE—ARCTIC RIGHT WHALE—*Balæna mysticetus* Linnæus.

It was probably an individual of this large and widely distributed species which Sir Alexander Mackenzie observed when he discovered the great Mackenzie River in 1789. On that occasion he landed on an island at its mouth, which he named "Whale Island." Although old and recent traces of them were many, yet he did not meet with any Eskimos. The Eskimos who frequented Fort Anderson succeeded most seasons in killing one large whale, but seldom as many as two. Plenty reigned for many months as a result. Quite a large number of hunters were necessary for the successful pursuit of a whale. The implements formerly used were an ivory barb, with an iron or flint point, attached to a strong walrus line having an inflated bladder at the other end. A long haft of wood was used to propel the barb, which detached itself when the object was hit. This course was followed until as many as a dozen or more floats were dragged by the whale; he soon became exhausted by the persistent attack of his enemies, and when that happened they approached and by repeated thrusts lanced him to death. The fresh blubber resembles pork in colour and taste. Our servants preferred to eat it raw with their dry venison. When fried, it was very rich and oily. Needless to state that the Eskimos of the Arctic region are exceedingly fond of fat and oil, and that during the long winter season they consume far more of these necessary and cold-protecting foods than any other race on earth. On June 25, 1862, the tenth anniversary of his departure from Stornoway, Lewis, Scotland, the writer had his first near view of the ice-covered polar sea and of the bay named by Sir John Richardson, in 1826, after England's celebrated but hapless explorer, Admiral Sir

John Franklin.* We then and there distinctly heard one or two large whales spouting at a great rate in a narrow lane of water, which was clearly visible at some distance amid the immense field of unbroken ice. In the end of June, 1864, he had a similar experience in the same quarter. Since the advent of American whalers, however, into these narrow seas, about twenty years ago, whales are now said to be rapidly diminishing in numbers to the westward of the Mackenzie, and this will soon be the case in the narrow eastern seas of the land-locked portions of the Canadian polar ocean. In several suitable spots on the south shores of Franklin Bay and Langton Harbour we saw some ribs, crown, and other large bones of the whale, and certain other remains, including a human skull and ancient Eskimo huts or winter houses. With the exception of two families, with one large boat, or umiak, and three kayaks, or canoes, who had been directed to come there from Liverpool Bay to meet and assist us collecting birds, eggs, etc., and one or two young men who accompanied us from Fort Anderson, we never saw any other representatives of this intelligent and interesting race in that quarter.

I think the Greenland whale has been observed by all of the Arctic expeditions. Markham relates that the Nares ships of 1875-76 witnessed numerous examples of the bottle-nosed species near Davis Strait, but as they do not yield much oil they are not in much request; also one dead floating Greenland whale, worth £1,000. One of Greely's party found a rib of the latter as far north as latitude $82^{\circ} 33'$. Upon the east side of Port Kennedy the bones of whales were found in two places, a mile apart; the lowest was 180 feet and the highest 300 feet above the sea. They were more or less buried upon a flat patch of rather rich earth and nearly a mile inland.

*He had previously—in June, 1857—obtained a distant view, and but for a prevailing blizzard would have had an equally close view of Liverpool Bay in January, 1859.

McClintock asks: "When did the skeletons of these whales drift to their present position? When did the forest trees grow in Baring's and Prince Patrick's Land, many of which are still fit for firewood? And when were the lofty table-lands of North Devon and North Somerset scored by the immense ravines, broad and deep, with sides almost perpendicular, and rocky beds, sometimes 100 yards wide, where no rivers now exist, nor even streamlets, except during the few weeks of summer thaw? Will geology ever solve these enigmas?"

NARWHAL—*Monodon monoceros* Linnæus.

From Eskimo reports, as well as from the published accounts of various exploratory expeditions, there can be no doubt that this marine animal is at least sparingly present in almost every section of the Alaskan and Canadian seas of Arctic America. Doctor Armstrong, of the *Investigator*, has noted them among the mammals observed by him; Sir John Ross, Sir George Nares, and other explorers refer thereto, while General Greely gives latitude $81^{\circ} 35'$ north as its highest migratory range. Several skeletons and one tusk weighing about $14\frac{1}{2}$ pounds and 7 feet $9\frac{1}{2}$ inches in length were found on Boothia Felix during the stay of Admiral Sir John Ross's party there from 1829 to 1833, when they abandoned their ship and retreated by boat to Barrow Strait, where they were rescued by a whaler at one time commanded by Ross himself. Doctor Armstrong, the accomplished surgeon and naturalist of the *Investigator*, has written that in the large western islands (Baring and Melville), "where the soil is arenaceous, animal life is more abundant than elsewhere; this gradually decreased as we proceeded to the eastward, where the limestone formation generally prevailed. But the greater number of bears, seals, walruses, and sea fowl met with, although these are more difficult to procure than musk oxen or reindeer, by their great size afford sufficient compensation; the carbonaceous element of the food (fat), the great supporter of respiration and life, being so largely supplied."

HARBOUR PORPOISE—*Phocæna phocæna* (Linnaeus).

In the oft-referred-to statement of London fur sales, half skins of the porpoise appear without a break from 1856 to 1869, inclusive (I can not say if any were previously secured for export); then we have the columns for 1870 and 1873 blank, while the catch varied between 4 (the lowest) in 1862, 5 in 1863, 6 in 1864, and the highest (2,278) in 1865. The total sales for the twenty years amount to 14,048 half skins—equal to, I presume, 7,024 killed porpoises. As neither Dr. Robert Bell nor Mr. Preble mention this animal, it is probably not an inhabitant of the waters of Hudson Bay, and must, therefore, be considered as a product of Labrador seas.

The discoverer of the great Mackenzie River (which figures so frequently in these Notes, and from which a large amount of material was forwarded to the Smithsonian Institution, and which has also for a long time been, and still is, a valuable and rich fur preserve) surely deserves some notice, especially by a later fellow-townsmen. The celebrated fur trader and explorer, Sir Alexander Mackenzie, was a native of Stornoway, Lewis, Scotland, who emigrated to Canada in 1779, and soon after engaged in the fur trade, and in time became a partner and leader in the Northwest Company. In 1789 he discovered and descended the Mackenzie River to its outlet in the Arctic Ocean. In 1793, by way of Peace River, he was the first white man, with matchless prudence and fortitude, to force his way across the Northern American Continent, and there, in latitude 52° 20' north, left his mark on a rock by the seaside, bearing the inscription: "Alexander Mackenzie, from Canada by land the twenty-second of July, one thousand seven hundred and ninety-three." Mackenzie's discoveries added new regions to the realms of British Empire and commerce, and in doing so extended the boundaries of geographical science. He did much more, and but for his labours, and those of his contemporaries and successors in the Fur Trade, it is doubtful if any part of that country would to-day be a portion of the Canadian Dominion. Mackenzie is described as "possessed of a vigorous intellect and a fine physique, of medium stature, square, muscular build, very strong, lithe, and capable of enduring great fatigue. He was a remarkably fine-looking man, firm and dignified, refined and noble in thought, with a mind and energy bent on enterprise, and filled with zeal for the benefit

of his partners in trade, and with a desire for the well-being of mankind in general." He died in Scotland on the 12th of March, 1820.

Another great explorer and trader of the Hudson's Bay Company, the notable Chief Trader Thomas Simpson, likewise calls for some proper reference herein. He was a native of Dingwall, in the County of Ross, North Britain, and entered the service of the Company as secretary to his relative, the resident "emperor-governor," Sir George Simpson. He left Fort Garry, Red River, on December 1, 1836, for Fort Chipewyan, whence he was to set out in company with the prudent, capable and experienced Chief Factor Peter Warren Dease (the builder and provider of Fort Franklin, on Great Bear Lake, where Sir John Franklin passed the winter after his return from his second overland expedition to the northern coast in 1826), in order to complete the exploratory work of that party west and east of the mouth of the Mackenzie River. All know how well these officers performed the duties entrusted to them. A perusal of Simpson's narrative of their explorations should prove interesting to Canadians. General Sabine, who revised the same, wrote as follows: "I found the work in a state of such complete preparation that the alterations which I saw any occasion to make were very few indeed, and these chiefly of a verbal nature. It impressed me with an additionally high respect for your brother's memory, that he should have drawn up the narrative of the expedition on the spot in such a complete manner that it might quite well have been printed verbatim." On the 6th of June, 1840, Simpson, who had returned to Fort Garry on the preceding 2nd of February, after an absence of three years and two months, marked by toils, perils and privations such as have seldom been endured, set out for England by crossing the prairies to St. Peter's (St. Paul and Minneapolis were not in existence then), and thence to New York. He pursued his journey with much rapidity, left the main body of buffalo hunters with whom he started, and in company with four men went on ahead. On a chart which was found among his other papers after his death his last recorded day's march (June 11) was 47 miles in a direct line. After that date every circumstance is involved in mystery. He had evidently turned back, and all that can be ascertained with certainty is that on the afternoon of the 13th or 14th of June he shot two of his men, and that the other two mounted their horses and rejoined the large brigade of hunters. A party of them went next morning to the scene of the shooting where his death took place. "Whether he shot the two men in self-defense, and was subsequently killed

by their companions, or whether the severe stretch to which his mental faculties had been subjected for several years brought on a temporary aberration of mind, under which the melancholy tragedy took place, is known only to God and the surviving actors therein.

“Man is a harp, whose chords elude the sight,
Each yielding harmony disposed aright;
The screws reversed (a task which, if He please,
God in a moment executes with ease),
Ten thousand thousand strings at once go loose,
Lost, till He tune them, all their power and use.”

“Thus perished, before he had completed his thirty-second year, Thomas Simpson, a man of great ardor, resolution and perseverance, one who had already achieved much, and has left a name which will be classed by posterity with that of Cook, Parry, Lander, Franklin, Rae, Ross, McClintock and others of a later date. The Royal Geographical Society presented to him in 1839 their founder's gold medal, which, however, never reached him. It was not until October, 1841, that the remains of Simpson were sent for from where he fell and brought to Fort Garry for interment.”

RODENTIA.

BUSHY-TAILED WOOD RAT—*Neotoma drummondi*
(Richardson).

Chief Trader W. J. McLean informs me that Fort Liard, Mackenzie River District, where he was post manager from 1863 to 1872, is the only place in the northern department of the Company where he has seen a few examples of this rat. This post is situated in latitude (about) 60° north and longitude 124° west. In New Caledonia District, British Columbia, however, it is quite common, and individuals are sometimes secured in native and other buildings. At present, Fort Liard may be considered the eastern range limit and the northern as well; but it is probably a more northerly resident on the west side of the Rocky Mountains. Mr. Moberly states that a wood mouse or rat, colour light brown

inclined to gray, and about 5 inches long, was repeatedly seen by him at Fort McMurray, but nowhere else on this side, although not uncommon in New Caledonia, British Columbia, where the people speak of it as the "small wood rat."

WHITE-FOOTED OR DEER MOUSE—*Peromyscus arcticus*
(Mearns).

Although we failed to secure any specimens of this mouse at Fort Anderson, it may still be discovered in the country to the northward of Forts Liard, Simpson, Resolution, Rae, and Big Island, from which points numerous examples were obtained by Messrs. Ross and Kennicott, and forwarded to the Smithsonian Institution in the years 1860 to 1862. Mr. Moberly mentions the existence in the region of Athabasca and Peace rivers of a brown wood mouse, which destroys martens and other fur animals caught in dead-fall traps.

I incline to think that this mouse ranges farther north than the several Mackenzie River District posts (Forts Simpson, Liard, Big Island, Rae, and Resolution), from which specimens were forwarded to Washington by Messrs. Kennicott, Ross, Kirkby, Clarke, Reid, Brass, and Mackenzie in the early sixties of the last century. From the description given, I think Mr. P. Deschambeault met with this species, both at Isle à la Crosse and at Lac du Brochêt post, situated at the north-eastern end of Reindeer Lake.

RED-BACKED MOUSE—*Eutamias gapperi* (Vigors).

A fairly large number of examples of this species were collected by the Eskimos on the polar shores of Liverpool and Franklin bays, and in the adjacent country of the lower Anderson and Mackenzie rivers. Some were also taken in

the vicinity of Fort Anderson and from the eastern Barren Lands. At nearly all of the Company's posts in the Mackenzie River District likewise, a number of skins were obtained for the Smithsonian Institution, and the gentlemen of the service above named were the contributors, together with Messrs. Hardisty, Wilson, Lockhart, A. Flett, J. Flett, W. Thomson, Smith, Gaudet, Taylor, Sibbiston, McDougall, Camsell and MacFarlane.

Among the many northern Mackenzie River collectors of those distant days to whom reference was made in my paper on birds breeding in Arctic America, as well as those specially referred to in these notes, but few besides the writer are now (1908) living. I think they are Chief Factor James McDougall, Chief Traders C. P. Gaudet, W. J. McLean and William C. King, and Messrs. Murdo McLeod and John Edward Harriott. Archdeacon Robert McDonald, D.D., of Peel River, also ranked among the number of successful Smithsonian collectors of the early sixties of the last century. Among those who have passed away are the lamented naturalist, Robert Kennicott; Chief Factors William L. Hardisty, Lawrence Clarke and J. S. Camsell; Chief Traders Bernard R. Ross, James Lockhart, John Wilson and John Reid, and Messrs. Strachan Jones, A. Mackenzie, Andrew Flett, James Flett, J. Sibbiston and William Brass; also the recently deceased Bishop Grandin, D.D., of St. Albert, Alberta, and Archdeacon W. W. Kirkby, D.D., of Rye, New York, both of whom contributed some interesting specimens during their former missionary sojourn in the Mackenzie District. Neither has death spared the Smithsonian Institution. The eminent Professors Henry and Baird, together with the able Assistant Secretary, Dr. G. Brown Goode, the genial and experienced zoologist, Major C. E. Bendire, and others, have been called away.

MEADOW MOUSE—*Microtus drummondi* (Audubon and Bachman).

Quite a large number of skins were forwarded from Fort Anderson to Washington. They were obtained from the Eskimos of the Mackenzie and Anderson rivers, while a few were secured in the neighbourhood of the fort. In severely cold winters individual mice are often found dead in stores and outhouses, and also on the snow in sparsely-wooded tracts of country. Disease may, however, be sometimes the real cause of death. Some Indians assert that several species of mice breed oftener than once annually.

LITTLE MEADOW MOUSE—*Microtus macfarlanei*
Merriam.

The Indians, and especially the Eskimos, who resorted to Fort Anderson, supplied a large proportion of the specimens received by the Smithsonian Institution from the Mackenzie River region, in course of the years from 1861 to 1866, inclusive. There are seasons during which mice are exceptionally abundant in different parts of the great Canadian North-West. Named after the writer.

CHESTNUT-CHEEKED MOUSE—*Microtus xanthognathus*
(Leach).

This comparatively large mouse is very abundant most seasons in the far north, as well as along the Arctic coast of Canada. Numerous skins thereof were secured at Fort Yukon (Alaska), Forts McPherson, Anderson, Good Hope, Norman, Simpson, Big Island, Rae, and Resolution, Great Slave Lake, Mackenzie River District.

TAWNY LEMMING—*Lemmus trimucronatus* (Richardson).

From the polar shores of Liverpool Bay and Cape Bathurst, from the lower Anderson River, from the neighbour-

hood of Fort Anderson, from Fort McPherson on Peel River, and from Fort Yukon in eastern Alaska, many examples were obtained of this small animal, which were forwarded to the Smithsonian Institution at Washington some forty years ago. From the published records of Arctic explorations there can be little doubt that at least two species of lemmings are comparatively abundant, even at the highest attained latitude, at many points of the northern polar lands of the Dominion of Canada visited by the various ship expeditions.

On Baring Island Doctor Armstrong found them numerous in many localities, at most periods of each season, and also in large numbers on the ice during the spring thaws. He also knew them to prey on each other, has himself partaken of their flesh, and thought it delicately nice and tender. He writes that the female lemming produces from two to six at a birth. Sir Edward Parry found two species of lemming equally abundant on Melville Island; he gives the number of young as varying between four and eight. A female captured in 1820 had four *in utero*. On July 12 he discovered a nest containing six blind, naked, and helpless little ones, which grew so rapidly that they were able to quit it ten days later. Lemmings subsist on the products of the soil, such as dry dwarf willow, grasses, etc. Sir James Clark Ross states that lemmings were very abundant in Boothia, and he also confirms the above birth references from his observation. Captain Markham, of Sir George Nares' expedition, met with lemmings on his North Pole expedition of 1875-76, while General Greely found them in large numbers on Grinnell Land, as far north as latitude $83^{\circ} 24'$ north. Eight examples were secured by his party during their stay in that quarter. They live in comfortable nests, composed of dry grasses, in holes in the ground, with two entrances to each. Sir John Ross found the skeleton of a lemming on an ice floe 60 miles north of Spitzbergen, in 1827.

HUDSON BAY LEMMING—*Dicrostonyx richardsoni*
Merriam.

This species is decidedly more abundant than *Lemmus trimucronatus* in Arctic America. A considerable number of skins was collected in various conditions of pelage from midsummer to midwinter, not only in the vicinity of Fort Anderson, but also from the lower Anderson River, the Barren Grounds, and on the coast shores of Liverpool and Franklin bays. Two females secured in the "Barrens" on June 26, 1865, each contained five embryos, while a few days later (June 30) a dead male example, perfectly white, was discovered in the nest of a golden eagle, 2 or 3 miles to the west of our usual summer crossing of the Wilmot Horton River.

MUSKRAT OR MUSQUASH—*Fiber zibethicus hudsonius*
Preble.

Like most of the important fur-bearing animals, the musquash greatly fluctuates in number. We have usually several seasons in succession when they are very abundant, followed by quite as many when they are comparatively scarce, and then between these periodic fluctuations we have a year or two when the returns are either above or below the average trade, as will now be demonstrated. From 1853 to 1877, the Company sold in London 10,600,056 musquash, or an average of about 424,000 skins a year. Outfits 1853 and 1854 exceeded this result. They yielded, respectively, 493,952 and 512,291; but the following nine sales (1855 to 1863) were all below the average, and ranged between the period minimum (177,291 skins) in 1860 and 357,060 in 1863. There was a material increase in 1864 (509,769 skins), then three years of decline (418,370, 320,824, and 412,164 skins). However, 1868 gave as many as 618,081 skins, after which the two succeeding seasons fell below the average (404,173 and 232,251 skins), and the statement of

sales winds up with seven good years, varying between 437,121 skins in 1877 and 767,896 skins in 1873, which was the best of the series.

The musquash abounds in all suitable localities throughout the entire North-West Territories of Canada. It is abundant in marshy tracts on both sides of the Rocky Mountains. It is also very common on the Lower Mackenzie River, and less so on the same portion of the Anderson River, to their outlets in the polar sea. Albino examples are occasionally met with, but in all sections of the country formerly ruled by the Hudson's Bay Company a few skins of a fine dark variety of this species are annually secured by the native and other hunters. Seasons of high water, however, are a necessary factor in the propagation of the muskrat, while summers of drought and continued low water curtail expansion and also cause many deaths during the succeeding winters. In corroboration of this view I would offer a few remarks. The outfit 1889 was my first of five years' charge of the Cumberland District, Lower Saskatchewan. The stage of water that autumn was fairly good in the many marshy streams, small lakes, and ponds in this musquash country (probably the best in western Canada), and the returns therefore quadrupled those of the preceding season. The following year was dry, and both water and the musquash catch shrank considerably, while many thousands of the animals perished miserably under the ice and in their frozen up "washes," or winter houses. This unfortunate occurrence adversely affected results for two or three years, but in the meantime water conditions improved and have been very favourable for the last decade, so much so, indeed, that the annual catch of musquash therefore has more than doubled that of any of the previous ten years in the district's history. In fact, I believe it turned out about 450,000 skins for outfit 1900. When very numerous, epidemic liver disease appears and carries off many thousands of musquash. Last year's Cumberland returns declined nearly two-thirds,

and they may go still lower for this season, after which they will, as usual, rapidly increase again in numbers. More attention than before is now given to the hunting of the musquash in this and other districts, and as a result the Company's sales are very considerably above the average of former years. In January, 1897, they sold 492,244 skins; in January, 1900, 756,910 skins; in January, 1901, I am told that the sales bordered on 2,000,000 skins; in January, 1902, 1,650,214 skins, and in January, 1903, 1,482,670 skins. This last showing is only 53,122 skins less than double the figures for the best sale (1873) entered in the London sales statement. The aggregate total for the period was 10,600,056 skins.

Leading hunters at the Pas, Cumberland, state that when about a year old the musquash begins to breed. The female has but two litters, the first and three each succeeding season for a time. The number of young brought forth at a birth varies between 8 and 20. When born, they are weak and blind for some days, but they soon acquire sight and strength and learn to swim about and aid in providing for their own gradually increasing wants. Their food consists of esculent grasses and aquatic roots of various kinds. As already mentioned, many thousands of musquash die of disease, and many other thousands perish in seasons of low water. Mr. Colin Thomson, an intelligent observer, remarks:

They have an instinctive habit which those who hunt them would do well to learn. They have a general residence in which they live and exercise their natural instincts; to this residence a storehouse is attached at a little distance, in which they put up many dainty and succulent roots against the "rainy day" and a long winter; and when misfortune drives them from their homes, they are not without a refuge, although it be but a small one. The material used in the construction of their houses is such as they find in the marshy swamps where they live, and it is not uncommon to find the entire family of a season living in one house, sometimes as many as sixty in all.

Another informant, speaking of his own experience at Frazer Lake, British Columbia, and of his residence at posts on the Saskatchewan, Athabasca, and Peace rivers, writes that "the musquash copulates in the months of May, June, and July; that the females have three litters each season—the first being the most numerous, the second less, and the third the least fertile in the series—that they are born sightless, and that the male assists in the rearing of the young."

JUMPING MOUSE—*Zapus hudsonius* (Zimmerman).

In the early sixties of the nineteenth century the Smithsonian Institution at Washington received from Liard River, Fort Resolution, Great Slave Lake, and from the Peace River several examples of this mouse, but from report I do not think it is very common in these localities. Mr. B. R. Ross states that it is numerous in the Portage la Loche country, but rather rare in the district of Mackenzie River, but I do not remember having seen any at Good Hope or the Anderson. They may, however, be sparingly represented by examples at Liard and other points in the distant north. Mr. P. Deschambeault informs me that he has seen some jumping mice both at Isle à la Crosse and Lac du Brochêt. Mr. Moberly has also met with them on the Athabasca and Peace rivers.

POLAR HARE—*Lepus arcticus* Ross, and *L. grœlandicus* Rhoads.

I doubt if this hare is "abundant" in the Barren Grounds, or on the coast shores of Arctic Canada, with the exception of the isthmus of Boothia Felix. We hardly ever observed an individual on our many summer and winter journeys in the far Northland, while I think we secured but three specimens during our five years' residence at Fort Anderson. Two or three skins were also obtained by Chief Factor Lawrence Clarke from the Barrens north-east of Fort

Rae, Great Slave Lake. They are said to be fairly numerous among the tundras of northern Alaska, while Arctic explorers have found the polar hare "very abundant" on the large islands lying to the north of the American Continent. On Baring Island they were in considerable numbers and many were shot. The *Resolute* obtained 146 on Melville Island, and Ross secured some in Boothia. Nares met with them on his polar expedition, and Greely's men captured 571 examples. He gives latitude $83^{\circ} 24'$ north as its highest northern range. Lieutenant Lockwood killed one at Cape Benêt, on the coast of north-western Greenland. Captain Markham, of the *Alert*, observed traces on the frozen polar sea, 10 miles from the nearest land, in latitude $83^{\circ} 10'$ north. Doctor Armstrong also mentions that individuals were occasionally seen on the ice at a distance of 2 or 3 miles from the shore. He asserts that they breed three or four times in the course of an Arctic season, and that the females have as many as eight and ten at a birth. This seems both extraordinary and improbable, but the doctor was a close observer and had had three years' experience of Baring Island and its fauna. Sir James Clark Ross, on the other hand, writes that a female shot at Sheriff harbour, Boothia, on June 7, 1832, had four young *in utero* nearly mature, each $5\frac{1}{2}$ inches long, and of a dark gray colour. In the uterus of one killed at Igloodik on June 2, six young were found, not quite so far advanced. One taken by Ross himself on June 28, a few days after birth, became sufficiently tame to eat from the hand, but it died fifteen months later. He remarks that the polar hare exists even in the most desolate sections of the Arctic regions, and that, too, throughout the long winter; nor does it seek shelter by burrowing in the snow, but is often met with sitting under the lee of a large stone where drifting snow has accumulated and seems to afford some protection from the biting blast. Doctor Armstrong, however, holds that this hare, as well as white foxes, lemmings, and the very few native birds, all burrow in the snow at times during the winter for the sake of warmth.

NORTHERN VARYING HARE—*Lepus americanus macfarlanei*
Merriam.

Australians used to complain bitterly of the great havoc committed by the introduced English hare, or rabbit, and at one time the Government offered as much as £20,000 sterling for the discovery of a remedy which would have the effect of extirpating the nuisance, or at least considerably reducing the rabbits in number. We of the north then thought that if the latter could be inoculated with the virus of the disease which periodically affects the head and throat and carries off many thousands of the American hares, when they are most abundant in each decade, it would doubtless be highly appreciated in Australia, while, on the other hand, the natives and others resident in the eastern, western, and northern territories of Canada would be greatly pleased if the referred-to epidemic would recur in a less fatal form and thereby prevent the years of scarcity frequently experienced. As already stated in this paper, there are several fur-bearing animals, notably the lynx and marten, whose numbers would seem to be chiefly dependent upon the abundance or scarcity of this species. The yearly catch of lynxes rapidly diminishes in volume as soon as the rabbits become scarce, and when the latter are comparatively rare a large proportion of the great, but now dwindling crowd of lynxes, suffer privation, and some actually starve to death. Indians occasionally find examples of such victims. Nearly every post in the Mackenzie River District sent one or more specimens of the American hare to the Smithsonian Institution. It is said that it breeds two and three times each season; that the sexes copulate in the end of March, May, and August; that the period of gestation lasts about three weeks, and that the female seldom becomes a mother before she is a year old. A litter usually consists of three or four; but when on the "periodic" increase, females are known to have as many as six, eight, and even ten at a time, and then gradually return to three and four. The young are not born blind,

nor, so far as known, does the male render any assistance in rearing them. I am not able to substantiate this statement by my own experience.

The Hudson's Bay Company does not trade rabbit skins in the interior, but from the posts situated on the shores of Hudson Bay they annually export to England many thousands. From 1853 to 1877 the total amounted to 1,418,361 skins. Twelve of these years had sales varying between a minimum of 1,036 in 1871, to 45,917 in 1869, and then from 50,948 in 1876 to the maximum sale of 174,715 in 1855. The three next years of the series turned out 141,403 in 1865, 143,930 in 1867, and 106,320 in 1868. Subsequent to 1877 I have no data, except for January, 1897, when 81,759 skins were sold; January, 1900, with 18,372, January, 1902, with 5,857 and January, 1903, with 16,873 skins. The pelt of this valuable food animal is of great service to northern Indians, who cut up the fur skins into narrow strips and therewith make them into robes for their women and children, and tunics or shirts for the men for winter use, and these garments certainly prove warm and comfortable for them. The American hare does not inhabit any of the large islands situated to the north of the continent. It is there replaced by *L. arcticus*. Neither did McClintock at its extremity (Bellot Strait) nor Ross at near its centre on Boothia Felix meet with any examples or traces thereof on that far extending north-eastern portion of Canada's continental territory. This species has recently been named in honour of the writer.

LITTLE-CHIEF HARE—*Ochotona princeps* (Richardson).

Although I have never made the acquaintance of this hare-like mammal, yet from what Mr. Moberly states I incline to think that it is to be found sparingly on both sides of the Rocky Mountains as far north as latitude 60°—Richardson's northern limit. Moberly also refers to a rabbit about the size of *Lepus americanus*, of a grayish colour, which does not change to white in winter, while its

movements are very swift. Indians informed Mr. Ross that little-chief hares were common in the mountains of the Liard River, while Jack McQuesten obtained some specimens on the Upper Yukon, about 200 miles south of the old fort and in about latitude 63° north.

CANADA PORCUPINE—*Erethizon dorsatus* (Linnæus).

Porcupines are but rarely met with in the wooded country of the northern Anderson River, but in the region to the south they are somewhat more numerous, though nowhere in the far north very abundant. It is said that they copulate in September, and that the young are not brought forth until the following April. They are usually one or two in number, and, like most mammals, are born blind and helpless. They nest in rock-sheltered holes. The male renders no assistance in rearing his offspring. They spend much time among the trees, on which they subsist. Indians consider them the most insolent and the clumsiest of animals. Neither Doctor Russell nor the Messrs. Preble met with this species on their recent Arctic and Hudson Bay expeditions. Mr. George Deschambeault says that the period of gestation lasts about twelve months.

YELLOW-HAIRED PORCUPINE—*Erethizon epixanthus*
Brandt.

The northern Indians concede that there are two kinds of porcupines in the Canadian Territories. This species, however, is more numerous toward the Rocky Mountains, where it probably replaces *E. dorsatus*. The flesh of the porcupine is considered excellent eating, not only by the natives but by all who have partaken thereof. Some hunters state that the females bring forth two and three at a birth. The Slave tribe of Indians inhabiting the Liard and Mackenzie rivers dye the quills of various colours and weave them into belts, garters, bands, bracelets, and rings for table

napkins. They also ornament bark rogons and other birch articles, women and children's dresses, and the front uppers of leather moccasins therewith. Mr. P. Deschambeault says that he believes both species exist in the hunting grounds of the Isle à la Crosse (English River District) and Lac du Brochêt (Cumberland District).

BEAVER—*Castor canadensis* Kuhl.

This well-known and valuable fur animal has been so fully described by travellers, as well as naturalists, that it is by no means easy to add matter of interest to its history. I shall, however, venture to submit a few items bearing thereon. From a consensus of statements and opinions elicited by me from the examination of aged Chipewyans of Athabasca, and Carrier Indians of New Caledonia, British Columbia, I believe that the sexes copulate in the months of January and February, and that the young are brought forth in April and May following. The period of gestation is about three months. The young are born blind and are very helpless, but both sight and strength are duly acquired and they soon display much activity. They are suckled for some weeks, but early learn to feed on succulent stems and the tender roots of aquatic and other plants. The most prolific females are those of middle age, and they annually produce from four to five and six at a birth, while instances of as many as seven and even eight are not infrequent on Peace River. Chief Trader Moberly has known of two cases, in one of which the female had eight and in the other nine little ones. A Chipewyan hunter also assured me that he once found as many as nine well-formed embryos in the uterus of a female killed by him on the Lower Peace River. Both tribes state that the female beaver seldom or never has young before the third year, and that there are only one or two cubs at first, but more the following seasons. After attaining a certain stage in life the birth rate begins to decline. The adult beaver subsists on various roots, pop-

lar bark, green willows, birch, and other deciduous leaves. The male assists in providing food for the young in the earlier stage of their existence. When necessary, this intelligent animal erects new, and always renovates old, lodges and dams in the autumn. One or two kindred families frequently live together, and their progeny continue for upward of two years with their parents, after which they are usually expected to mate and provide for themselves. The males often fight fiercely during the rutting season. It is not an uncommon experience for hunters to find one or more beavers dead of disease in their houses or "washes." Such animals are seldom other than in good condition, but the Indians will not eat the meat except they be verging on starvation. In this connection, Mr. G. Deschambeault writes that "when beaver are found dead in their 'wash' they are generally (mouth and nostrils) infested by numerous small white worms. Low water also causes the death of beaver some winters in their lodges." Some old veteran males become very large and heavy. The flesh of the beaver, except when very lean, is very palatable and easy of digestion, and is much relished by the natives and northern resident whites who have partaken thereof.

If let alone, or not much disturbed by hunting, the beaver will rapidly increase in numbers. In proof of this statement, I would mention that many extensive tracts of country in which they had become scarce or had wholly or almost entirely disappeared (as a result of the keen and very costly rivalry in trade which had for many years existed between the North-West Company of Montreal and the Hudson's Bay Company of England, previous to their coalition in 1821, it was uncertain for some time "which of them lost most money—neither of them gained money," while the general demoralization of Indians and whites was very lamentable) they afterwards recovered under the fostering policy of protection promptly inaugurated and intelligently pursued by the now united Fur Trading and Governing Cor-

poration. For more than a decade subsequent to 1821, each beaver district in the chartered and licensed territories of the Hudson's Bay Company was annually restricted to the collection of a certain fixed number of beaver, which course eventually proved of much benefit to all concerned. By this means the perpetuation of the beaver was ensured in sections where reckless slaughter had almost exterminated it, while the resulting expansion in more forward localities naturally followed. With the view, however, of reconciling them to this enforced mode of preservation, the natives were strongly urged and encouraged to devote their best energies to the trapping of martens and other fur-bearing animals. After the beaver were known to have largely increased in numbers, and still sold well, the above rule was gradually relaxed; and as the wants of the Indians in those days were comparatively few, they never experienced any particular hardship from the limit thus imposed upon them in the general interest. It may be here mentioned that the Company never encouraged the hunting of beaver or any other pelt *out of season*. On the contrary, they strictly prohibited the killing of beaver in summer, and would only reluctantly accept the skins of such animals as they were assured had been absolutely necessary for food purposes.

The introduction of nutria and silk in the manufacture of hats in the early forties of the last century struck a deadly blow at the value of beaver, the chief staple fur of Canada and the North-West for two centuries, from which it has not yet quite recovered. For nearly half a century thereafter, the prices annually obtained for pelts were some 60 and 70 per cent. below the average which had previously ruled. Since the Alaska fur seal, however, has come into "fashion," very much better rates have been realized by the smaller quantities of beaver sold in recent years. With the view of obtaining better prices in England, as well as for its future increase in numbers, the Company naturally favoured a continuation of its beneficial policy of restriction; but owing

to the then general abundance of beaver, and the advent of competition in the trade, this much desired course had to be gradually abandoned. For the twenty-five years from 1853 to 1877, the Hudson's Bay Company sold a total of nearly three million skins (2,965,389) of this important animal in the world's fur mart, London. The yearly catch from 1853 with 55,456 pelts to 87,013 in 1858 exhibited a steady increase. The year 1859, with 107,196 pelts, was, I believe, the first to reach and exceed the century mark since the union in 1821, but 1860 dropped to 91,459. While 1861 was only 926 skins below 1859, 1862 produced 115,580 pelts, 1863 produced 114,149, and 1864 produced 142,998, yet the last-mentioned year's sale was immediately followed by a decline of 24,750 pelts. The balance of the series from 1866 to 1877 varies between the minimum, 115,646 in 1877, and the maximum, 175,170 in 1871, certainly the highest and best since 1821, and probably one of, if not, the most productive in the history of the Hudson's Bay Company. An old writer of repute, however, writes that 175,000 beaver skins were collected by the "ancient concern" in one year about the middle of the eighteenth century. It is possible that this large number may have comprised the country trade of two seasons. European wars were rather frequent and somewhat protracted in those days, while it is on record that one or two of the Company's ships failed in making the annual round voyage between London and Hudson Bay. I think it is a matter of regret that the two recent historians of the Hudson's Bay Company, while throwing much light on the earlier and some of their later trade operations, have not also given us some definite statements of their yearly fur shipments and sales, which would have been generally appreciated. Mr. Beckles Willson has, however, given an interesting account of the Company's first London public sale, which took place on January 24, 1672. On this occasion the 3,000 pounds weight of beaver were put up in thirty lots, and fetched from 36 to 55 shillings a

pound. The other furs and peltries, bear, marten, and otter, etc., were reserved for a separate and subsequent auction, while previous receipts from the Bay had been disposed of by private treaty.

This first official sale, as it subsequently proved, of a series of great transactions which for upward of two centuries have made London the centre of the world's fur trade, excited the greatest interest, and both the Prince of Wales and the Duke of York, besides Dryden, the poet, were among the many spectators. Previous to the advent of Canadian traders from the east, the Indians of the surrounding country were wont to assemble in the spring at Lake Winnipeg, to the number of perhaps 1,500, where also birch-bark canoes were built. Six hundred of these, containing a thousand hunters, exclusive of women, came down annually to York factory with furs to trade. Beaver were very numerous in those days, and a great many were wasted in various ways, often as clothing and bedding. Not a few were hung on trees as native offerings upon the death of a child or near relation; occasionally the fur was burned off and the beaver roasted whole for food banquets among the Indians.

He further states that in 1742 two large expeditions of natives from the interior came down to York and Churchill (Fort Prince of Wales). One of them had 200 packs of 100 skins each (20,000 beaver, probably from Lake Winnipeg country), and the other 300 packs of 100 each (30,000 beaver and 9,000 martens). This made a total of 50,000 beaver received from both "expeditions." I take it that these came from the Chipewyan Indians of the distant Athabasca and intervening country, reaching Churchill by way of the English and Churchill rivers.

Doctor Bryce, in his concise History, writes that so effective and successful were the operations of the great North-West Company of Montreal, that toward the end of the eighteenth century a single year's trade produce was enormous, and comprised 106,000 beaver, 32,000 martens, 11,800 minks, 17,000 musquash and 17,000 skins of other animals. Still, if we knew the total Hudson's Bay Company's catch

for that year, I doubt if both returns of beaver would much exceed the total of 175,170 skins, given in the London fur sale statement for 1871. From 1858 to 1884 the District of Athabasca contributed 445,014, or an average of 17,116 a year to the Company's London sales. The average for the self-same posts for the five outfits (1885 to 1889) is about 8,000; and with the "opposition" trade added from 1890 to the spring of 1903, both will undoubtedly exhibit a further decline. From 1863 to 1883 Mackenzie River District exported a total of 183,216 beaver, giving an average of 11,822 a year. For the three years (1886, 1887, 1889) of which I hold data, it had fallen to 6,852, and is, I fear, very much lower at the present time. These are but samples of the general decrease in beaver receipts experienced at every trade competing point from Quebec to the North Pacific and from the international boundary to Hudson Bay and the north-western limit of its range in Arctic America.

It is now well known that for some years prior to the coalition in 1821, the annual catch of beaver was rapidly dwindling, and that in several sections it had been exterminated by reckless slaughter; another decade or two of similar trade competition would doubtless have led to its extinction, except for a time in retreats remote and difficult of access. We have had ample proof, however, by obtained results, of the beneficial operation of the wise and far-reaching policy adopted by Governor Sir George Simpson and the able and experienced fur-trade counsellors of the then united companies, for the due preservation of this valuable animal. For some years before and after the transfer of the country to Canada in 1870, the entire Peace River, together with many other streams and small ponds throughout the Territories, British Columbia, the Yukon, and the east, were swarming with beaver; but this, unfortunately, is not the case to-day. From 1853 to 1877, inclusive, the average number of skins sold by the Hudson's Bay Company in London was 118,615, as against their total catalogue sales of about 50,000 for

1897, 43,000 in 1900, 46,000 in 1902, and 49,190 for 1903. This is without doubt a bad showing for some of the later of the twenty-six years which have succeeded that statement. Even with the addition thereto of the "opposition" trade, in the very same locality, it is doubtful if the aggregate of both would greatly exceed one-half of this average. It is generally assumed that "opposition" or competition is the "life of trade" in all branches of business; but, in the opinion of many competent judges, the fur trade, from its very nature and the scope of its operations, is, or should be, one of the few essential exceptions to the rule. It is a matter of fact that the advent and continued presence of "free traders" at a Company's inland post has always had a more or less stimulating effect on the natives, by inducing them to exert themselves to a larger degree than usual in the hunting of beaver and all other fur-bearing animals; but although at first and for some time all concerned appear to benefit by increased returns, yet the inevitable accompaniment of reckless and indiscriminate slaughter sooner or later adversely manifests itself. This has hitherto been the invariable experience at every assailed post or district in North America.

We all know how the bison or buffalo of the prairies of Canada and the United States has practically disappeared, although half a century ago it was reckoned by millions. The beaver has been Canada's staple fur for centuries, and but for the Hudson's Bay Company and its officers it would long ago have ceased to exist as a commercial asset. Unless further action speedily intervene in the premises, however, the ultimate extermination of the Canadian beaver is merely a question of time. It has already disappeared for good from many sections in which it was formerly present. It is becoming very scarce in certain localities where it should receive immediate protection in the way of several legally-assured years of rest and full exemption from disturbance by hunters. In other districts, where it is gradually but surely diminishing in numbers, its killing should be re-

stricted on lines similar to those pursued by the Company for many years subsequent to 1821. Greater latitude might be accorded to hunting in now unknown and not easily accessible parts, where it probably abounds; but except for food absolutely required no one should be permitted to trap or shoot beaver *out of season*. It is useless making rules and regulations, however, unless they be strictly enforced. The woodland buffalo is now receiving some well-deserved attention in this regard, and it is about time that the musk ox should be protected from indiscriminate slaughter solely for the sake of his head or hide; there should be a seasonable limit imposed upon hunters thereof. Neither should the mountain goat and sheep, the elk, and the valuable food animals—the moose and woodland caribou—be neglected in this connection. And although the Barren Ground reindeer is still abundant, yet the northern Indians should not be permitted to continue or resume their ancient vicious course of reckless and indiscriminate slaughter of them whenever the opportunity appeared.

From Fort Anderson and nearly every other post, including Fort Yukon, skulls and other parts of the beaver were obtained for transmission to the Smithsonian Institution at Washington. While stationed at Fort St. James, British Columbia, in 1887 and 1889, I sent to the same institution two embryo skins taken from the uterus of a female killed in the vicinity early in May (there were five in all), together with that of a two-weeks-old example captured in the latter end of the same month. As to albinos, they are very rare, but I have seen perhaps as many as ten skins in course of my long residence in the North-West Territories. I have also observed quite a number of fine dark skins of the beaver in various parts of the country. I think those taken by the natives of Quebec who resort to Bersimis post, in the Gulf of St. Lawrence, are among the very finest. Labrador, East Main, and other Hudson Bay posts, also furnish a small number of similar pelts. As a rule, those which frequent

clear-water streams have a better colour than is the case with the summer inhabitants of very muddy rivers having their source in or beyond the Rocky Mountains and flowing through a sandy clay soil. The skins of such beaver are usually of a dirty rusty brown colour, with the inner fur of a lighter hue, and are certainly in appearance inferior to those of their cleaner-furred brethren, and must therefore realize lower prices in London.

The substance contained in two pyriform sacs situated near the organs of reproduction in the beaver, and commercially well-known as "castorum," has always been traded from the natives; and although it is not entered in the afore-said statement of sales, nor in the fur catalogues for 1887, 1902 and 1903, yet the Company's officers annually shipped to London considerable quantities of this valuable commodity. "At one time it was largely employed as a medicine for derangement of the nervous system, but now little used." This, of course, adversely affected prices, and for a number of years castorum did not sell well. Latterly, however, owing to its scarcity and its reported use as a base in the manufacture of perfumery, its value has been greatly enhanced. During my long stay at Fort Chipewyan, Lake Athabasca, upward of twenty abnormally large examples of castorum sacs, or "pods," as designated in trade, containing from three to nearly five times as much of the substance as is usually found within average-sized specimens, were obtained, for the most part, from animals killed on the Peace River. I also noticed and heard of a few similar "pods" elsewhere in the interior; but in those days Athabasca produced the very largest I ever saw.

From certain documents in my possession I believe we can form some idea of the extent of the castorum trade of the last century. As a rule the receipt of this article naturally corresponds with the annual catch of beaver. Mackenzie River District from 1863 to 1881 contributed a total of 6,251 pounds weight. From 1858 to 1884, old Athabasca

was premier, with 18,904 pounds, but in consequence of increasing competition in the north the annual average of the former for 1886, 1887, and 1889, is only 54 pounds, as against 329 for the period ending in 1884. The trade of the latter for the five years (1885 to 1889) gives an average of but 211 pounds as against 700 pounds for 1858 to 1884. Its former posts on Upper Peace River had not one-fourth as much castorum in 1889 as in other years. English River District gave 40 pounds for each of the outfits of 1889 and 1890; Cumberland District only 26 pounds in 1888, and 56 pounds in 1889; and then we have New Caledonia, British Columbia, with 113 pounds for each of 1885 and 1886, and 390 pounds in 1887, 390 pounds in 1888, 402 pounds in 1889, and 231 pounds in 1890; all of these results are very much below those realized previous to the advent of (the frequently vaunted) "free trade."

NORTHERN POCKET GOPHER—*Thomomys talpoides*
(Richardson).

Never having seen an example of this species, I know nothing about it; but from what Mr. Moberly states it probably inhabits the banks of the North Saskatchewan in the immediate vicinity of the Rocky Mountains. He further adds that there is an allied but somewhat larger gopher on the west side, from the Kootenay to the Fraser River. It is about two inches longer than *T. talpoides* and has very short ears, with more brown about the body. Both kinds are good eating, and they also form an important item in the diet of the grizzly bear.

NORTHERN FLYING-SQUIRREL—*Sciuropterus sabrinus*
(Shaw).

Having lost some of my original field-notes and several Smithsonian receipt lists, I cannot feel quite sure of a few stated entries and references in this paper. I have, however,

an impression that I saw a flying-squirrel north of Fort Simpson, and several elsewhere in other southern tracts of territory. Some specimens were collected at Fort Liard by Mr. Hardisty, at Big Island by Messrs. Ross and Reid, at Resolution by Mr. Lockhart, and one also labelled "Arctic America" by Mr. Kennicott many years ago. In 1893 Dr. Frank Russell, of the Iowa State University, secured one specimen at Grand Rapids, Saskatchewan, where he says they are very rare. The brothers Preble, of the United States Department of Agriculture, have also recently obtained some skins at Oxford House and Norway House, Keewatin. Mr. Moberly writes that the flying-squirrel of the Rockies must be *S. alpinus*, as it is not found in the country to the east. Mr. Pierre Deschambeault writes that the flying-squirrel is not uncommon at Isle à la Crosse and Lac du Brochét.

RED SQUIRREL—*Sciurus hudsonicus* (Erxleben).

This species is undoubtedly the most generally distributed of the squirrel family, and it is more or less common throughout the entire timbered region of northern continental Canada. It is also numerous in Alaska, while specimens have been sent to Washington from nearly every Hudson's Bay post in the Mackenzie River District. It makes its nest in a tree, and has usually, once a year, from four to six, and occasionally as many as seven, young. I obtained an albino example which must have been forwarded to the Smithsonian Institution. Mr. Moberly writes:

This squirrel is common at every place I have been since I came to the company's service in 1854—on the North Saskatchewan, Peace and Athabasca rivers, and at Fraser Lake, British Columbia. There is another ground squirrel, smaller than the red, and more brownish in colour, and lives high up on the mountains, chiefly beyond the tree limit. It has a peculiar call, more like a whistle than a chatter. In British Columbia there are three species of squirrels not found east of the Rockies. One has the head broader

than the red squirrel, with ears very round and with tufts on them; the colour brownish, the whiskers quite black, as well as the tip of the tail. The other is smaller and has the tip of the tail black. I have only seen it close to the mountains. A third is a large ground squirrel, with a tail somewhat resembling that of a flying-squirrel, which may be a spermophile.

NORTHERN CHIPMUNK—*Eutamias quadrivittatus borealis* (Allen).

Specimens of this chipmunk were collected at Salt River (an affluent of the Slave River below Fort Smith, Athabasca District), Forts Resolution and Rae, Great Slave Lake, Fort Liard, and one also by the writer, labelled "Mackenzie River," which was probably secured between Fort Good Hope and Fort Simpson. I never observed any in the Anderson region. Mr. Ross* gives its range as extending to Fort Good Hope, and states these animals were very destructive to such garden produce as was raised at Fort Resolution. Dr. Frank Russell secured two examples at Grand Rapids, near the outlet of the Saskatchewan River into Lake Winnipeg.

SAY'S CHIPMUNK—*Eutamias lateralis* Say, sp.

Mr. Drummond obtained examples of this species in the Rocky Mountains some seventy or more years ago, in about latitude 57° north. I cannot say that I ever saw a specimen, neither did Mr. Preble on his recent collecting expeditions to Hudson's Bay meet with or hear aught of this chipmunk.

PARRY'S SPERMOPHILE—*Citellus parryi* (Richardson).

Abundant in the Barren Grounds, on the Arctic coast, and in the vicinity of many of the rivers and lakes of the far-north country. In the early sixties of the last century numerous specimens were obtained from Fort Anderson, the

*Manuscript notes in the Smithsonian Institution.

Barren Grounds, Liverpool and Franklin bays, from the Yukon, and from the Mackenzie River. They breed once a year and have several young at a birth. They live in burrows, as described by Mr. Preble, who secured specimens from a point 150 miles north of Fort Churchill. Doctor Russell also obtained three examples at Herschel Island, situated to the west of the outlet of the Mackenzie River.

RICHARDSON'S SPERMOPHILE—*Citellus richardsoni*
(Sabine).

Richardson gives its range as not extending beyond latitude 55° north, and in the neighbourhood of the north branch of the Saskatchewan River, but I do not think I ever met this animal anywhere in the country.

STRIPED SPERMOPHILE—*Citellus tridecemlineatus*
(Mitchell).

Richardson found this species quite common at Carlton House, Saskatchewan. It is also said to have been abundant in all favourable localities between the international boundary and the North Saskatchewan River. I do not think it is an inhabitant of the regions beyond that stream.

WOODCHUCK—GROUND HOG—*Marmota monax canadensis*
(Erxleben).

Mr. B. R. Ross gives latitude 62° north as the northern limit of this animal. In 1889 three trade skins were obtained at Fort Simpson. I do not remember if I ever saw any examples at Fort Anderson or elsewhere in the Mackenzie River District, but at Fort Chipewyan, Athabasca, several were observed, and in May, 1885, I sent five skins to Dr. R. Bell, of the Geological Survey, Ottawa. At Cumberland House, Saskatchewan, however, the Company annually trade and export a few skins, which bring only a few cents in the London market. They are not common at any of the posts of the Pas, Moose Lake, and Grand Rapids. In 1888 one specimen was obtained at Pelican Narrows. The adjoining

district of English River, to the north, traded 3 skins in 1889, and 127 in 1890. Of the last, 11 came from Isle à la Crosse, 2 from Portage la Loche, and 114 from Green Lake. It has also been met with on the Nelson, Liard, and Peace rivers, while Chief Trader Traill secured two examples at Fort St. James, Stuart Lake, British Columbia, which he duly forwarded to the Smithsonian Institution at Washington. The Cree Indian name of this animal is "weenusk."

HOARY MARMOT—*Marmota caligata* (Eschscholtz).

This species is decidedly more abundant than *A. monax canadensis* in portions of the north country, especially in the neighbourhood of the Rocky Mountains and spurs thereof on or near the Mackenzie River. Specimens have been collected on the Peace River, and at Forts Liard, Simpson, Norman, and Good Hope, Mackenzie River District, as well as Fort Yukon and other points in Alaska; said to be common there beyond the Arctic Circle. In his list Mr. Ross writes: "North to Arctic Circle, abundant in the mountain ranges." For some unknown reason the Company never export this fairly good fur pelt. The natives make excellent robes with the skins. I have seen several on the Mackenzie River. Mr. Turner states that the Indians of Kotzebue Sound, North Pacific, use many skins of these for clothing. In July, 1889, I obtained from a Connolly Lake (British Columbia) Indian a fine robe, which was forwarded to Washington.

INSECTIVORA.

FORSTER'S SHREW—*Sorex forsteri* (Richardson).

Mr. B. R. Ross writes: "This genus (*Sorex*) is abundant throughout the district (Mackenzie River) as far north as the Arctic coast. I cannot speak confidently of either the names or number of the species." I have a strong impression that I have seen more than one kind of shrew at Fort Anderson, on Mackenzie River, in Athabasca, at Stuart Lake,

and at Cumberland House. A specimen in alcohol was forwarded from Fort St. James, Stuart Lake, British Columbia, which is entered under *Sorex* (*Microsorex*) *hoyi* Baird, in *North American Fauna*, No. 10, 1895, p. 90. Dr. Richard King has recorded a specimen of *S. forsteri* which he found near the mouth of the Great Fish River.

COUES'S SHREW—*Sorex sphagnicola* Coues.

The type-locality of this species is given in the above publication as Fort Liard, Mackenzie River District, and it probably extends much farther north. This shrew may be indigenous in other sections of the Canadian North-West Territories. Mr. Moberly also refers to a small short-tailed mole, or shrew, with a sharp, longish nose, found only in beaver lodges.

CHIROPTERA.

SILVERY-HAIRED BAT—*Lasionycteris noctivagans*
(Le Conte).

Mr. Moberly states that he has seen examples of bats on the Peace, Saskatchewan, and Athabasca rivers. Mr. P. Deschambeault writes that he has met with this species both at Isle à la Crosse and Lac du Brochêt, but I do not remember seeing any north of Cumberland House.

BLUNT-NOSED BAT—*Myotis lucifugus* (Le Conte).

Mr. B. R. Ross, in his oft-referred-to list, mentions that this bat is very rare, but that it extends northward to Salt River. This species is entered among the specimens collected by Sir George Back on Great Slave Lake, probably near Fort Reliance, about seventy years ago. Mr. P. Deschambeault is also confident that it is sparingly present at Isle à la Crosse and Lac du Brochêt. Mr. Preble, however, did not come across any examples in his trip to the shores of Hudson Bay, while Dr. Robert Bell's list contains both species.

ADDENDA.

1.

In the third report of the Select Committee of the Senate of the Dominion of Canada, appointed in 1888 to inquire into the resources of the "Great Mackenzie Basin," we find the following classified summary of one year's catch of furs offered for sale in London by C. M. Lampson & Co., and by the Hudson's Bay Company, namely:

Badgers	3,739	Martens	98,342
Bears of all kinds....	15,942	Minks	376,223
Beaver	104,279	Musk Ox	198
Ermines	4,166	Musquash	2,485,368
Fishers	7,192	Extra black	13,944
Foxes:		Otters, land	14,439
Blue	1,440	Rabbits	114,824
Cross	6,785	Sables	3,517
Gray	31,597	Seals, hair-dry	13,478
Kitt	230	Skunks	682,794
Red	85,022	Swans	57
Silver	1,967	Wolves	7,156
White	10,257	Wolverines	1,581
Lynxes	14,520		

It is to be regretted that the exact quantities of the foregoing furs and peltries pertaining to each of the companies were not given in separate columns, so that a naturalist, as well as the general public, might not form erroneous opinions in respect to the fur resources of the "Great Basin" in question. The annual fur sales of the Hudson's Bay Company in January and March comprise all of the pelts collected by their officers and agents throughout their former chartered and licensed territories and from parts of New Ontario, Quebec, and Labrador. On the other hand, while the Lampson incorporation undoubtedly received considerable quantities of the furs and peltries sold by them from the same hunting grounds, yet it is believed that the bulk of

their entire yearly collection is obtained from Alaska and other suitable sections of the United States of America. The Lampsons' share of the foregoing summary statement would therefore be subject to the following estimated *outside of Canada* reductions: Many of the badgers, bears, beavers, ermines, fishers, blue and cross foxes, and all of the 31,597 gray, a large proportion of the silver and white, with upwards of three-fifths of the red foxes, and many also of the white foxes, lynxes, and martens; fully three-fifths of the minks; more than two-thirds of the musquash; an important quota of the otters and rabbits; all of the 3,517 sables; some of the dry-hair seals; fourteen-fifteenths of the skunks, and a fair share of the wolves and wolverines.

We find 57 swan skins in the above summary, and they no doubt belonged to the Hudson's Bay Company. Although no skins of *Olor columbianus* or *O. buccinator* appear in their fur catalogues for 1897, 1900, 1902, or 1903, yet for many years they never failed in having quite a number of swan skins for sale in London. From 1853 to 1877 they sold a total of 17,671, or an average of nearly 707 skins a year. There were seven good years (1853 to 1856, 1861, 1862 and 1867), with sales ranging between 985 and 1,312 in 1854 (maximum), and seven poor years (1870 to 1877), with returns varying between 338 and the minimum (122) in 1877. From 1858 to 1884, inclusive, Athabasca District turned out 2,705 swan skins, nearly all of them from Fort Chipewyan. Mackenzie River District, according to a statement in my possession, supplied 2,500 skins from 1863 to 1883. From 1862 to 1877 Fort Resolution, Great Slave Lake, contributed 798 thereof. For 1889 Athabasca traded but 33, as against 251 skins in 1853. In 1889 and 1890 Isle à la Crosse, headquarters of English River District, sent out two skins for each outfit

2.

The wording of the Corporation's commission is almost unknown outside of the service, and the copying herein of the

author's own last parchment may not therefore be considered out of place. His first as chief trader was dated 1868, under the deed poll of 1834; the next as factor, under the deed poll of 1871, was granted in 1872, and the following in 1875. I may premise that the former recognized but two ranks, those of chief traders and chief factors, while the latter has four grades, namely, junior chief traders, chief traders, factors, and chief factors. Except in the title conferred, all of the commissions are exactly similar. The chief factor commission is as follows:

RODERICK MACFARLANE, Esquire:

By virtue of the charter granted by King Charles the Second by his letters patent under the great seal of England bearing date the second day of May, in the twenty-second year of his reign, to the governor and company of adventurers trading into Hudson's Bay, we do hereby appoint you a chief factor of the said company in all places where trade is carried on by the said company. You are therefore, in virtue of this commission, to exercise all the powers and to perform all the duties which now are or hereafter may be exercised and performed by a chief factor, and particularly to observe all the provisions of the deed of regulations, under the common seal of the company, which bears date the nineteenth day of December, one thousand eight hundred and seventy-one, and we do hereby order and direct all our clerks and other servants strictly to obey such orders as you may think proper to give them in the execution of the duties of your office. And you are to observe and follow such orders, from time to time, as you shall receive from us, the governor, deputy governor and committee of the company, or our successors for the time being, and all orders issued by our chief commissioner or resident governor.

Given under our common seal at our house in London, this first day of June, one thousand eight hundred and seventy-five.

By order of the governor, deputy governor and committee.

[SEAL.*]

W. ARMIT, *Secretary*.

* The seal consists of a coat-of-arms, with the motto *Pro pelle cutem*, around which are the words "Hudson's Bay Company. Incorporated, 1670."

The original seal is entirely of a blue colour and omits the words "Hudson's Bay Company. Incorporated, 1670."—R. MACF.

3.

Since the preamble to the foregoing Notes was originally drafted, the writer has observed with great pleasure that Canada, by means of her capable and experienced officials, like the veteran Prof. John Macoun and son, Mr. William Ogilvie, the brothers Tyrrell, and others of the Dominion Geological Survey; by zealous missionaries like the Rev. Father Morice, O. M. I., of Stuart Lake, British Columbia, and the Rev. Mr. (now Bishop) Stringer, C. M. S., formerly of Herschell Island, and now of Dawson City, Yukon; and by other naturalists, like the accomplished Mr. Ernest Thompson Seton, and Mr. Raine, of Toronto, has already accomplished a good deal in the very desirable direction therein indicated. The lamented death of Doctor George Mercer Dawson, Director-General of the Geological Survey, however, was a distinct loss to science and his country; but he has been succeeded fortunately by the clever and well-informed Dr. Robert Bell, who will probably spare no possible efforts in continuing the good work performed by his able predecessors in office, Sir William Logan, Doctor Selwyn, and Doctor Dawson. I am also glad to see that American naturalists have again come forward to do their good share in the premises. Prof. C. C. Nutting, Doctor Smith, and Doctor Frank Russell (especially the latter, who spent one winter at Grand Rapids, Saskatchewan, and another in the Mackenzie River District) have done much in furthering the interests of science and the State University of Iowa; while the brothers Preble, of the U. S. Biological Survey at Washington, have made an interesting summer journey to the shores of Hudson Bay, and they have also during the years 1903 and 1904, obtained splendid results in the Mackenzie River District. Robert Kennicott was there from 1859 to 1862 and thereby rendered invaluable service in the elucidation of obscure points, as well as in collecting new material toward the

ultimate completion of the natural history of continental Arctic America. As to certain brief references herein to the great fur traders of the North-West and Hudson's Bay Company of former days, as well as to some of the Arctic explorers, especially to those who have been engaged in the Franklin search, in which the writer has always felt a deep and abiding interest, he believes that these digressions will be condoned by his readers, not only by the older for reminding them of the almost forgotten past, but by the younger for calling their attention to the noble work accomplished by those who have gone before; and also for the reason that the successful collector and naturalist must necessarily be more or less imbued with an ambitious, enterprising and persevering spirit, similar to that which, without doubt, actuated those men in their respectively able and heroic labours for science, crown, and country.

For items of new or corroborative information used in the preparation of these Notes, the undersigned feels much indebted and obliged to Chief Traders Henry J. Moberly, Pierre Deschambeault, William J. McLean; to Assistant Commissioner Alexander Milne, M.D.; to Chief Factor Archibald McDonald; and to Messrs. Colin Thomson, George Deschambeault, Murdo MacLeod, Henry MacKay, Joseph Hourston, and Angus McLean, of the Hudson's Bay Company.

Should this brief and far from perfect record of past achievements by those mentioned, therein have the effect of somewhat stimulating the innate ardour of some of the younger men of the Company's service, *and others*, to make renewed and more systematic efforts than their predecessors in the already referred to and much desired direction of obtaining and contributing material toward the completion of the natural history of the great Dominion of Canada, he will consider himself well repaid for the time, labour, and attention which he has here and formerly given to the interesting and important subject in question.

272 THROUGH THE MACKENZIE BASIN

4.

Statement of fur returns for the Northern Department for outfit 1865.

District.	Badgers.	Bears.				Beavers.	Ermines.	Fishers.
		Black	Brown.	Gray.	White			
Mackenzie River		462	27	19	6	8,490	...	9
Athabasca		306	39	10	..	12,595	...	46
English River	5	376	77	6	..	3,669	...	61
Cumberland	28	88	22	5	..	3,244	...	83
Saskatchewan	133	515	80	42	..	11,954	...	113
Swan River	165	120	87	20	..	3,308	...	46
Red River	310	333	107	11	..	1,851	188	217
Lac la Pluie		179	9	985	322
Norway House	1	120	7	9,727	...	393
York		144	4	..	3	12,551	55	106
Total	642	2,643	465	113	9	68,374	243	1,396

Statement of fur returns for the Northern Department for outfit 1865
—Continued.

District.	Foxes.						Lynxes	Martens.	Minks.
	Blue	Cross	Kitt	Red.	Silver	White.			
Mackenzie River	7	347		445	76	{ 4 999 }	3,311	16,452	138
Athabasca		426		563	108	..	3,511	3,917	423
English River		102	28	129	33	8	4,495	4,076	3,002
Cumberland		79	123	326	6	..	1,643	2,330	2,057
Saskatchewan		83	462	274	21	..	4,185	2,714	380
Swan River		148	1,126	2,600	4	..	1,798	747	1,862
Red River		217	2,698	3,886	6	..	1,982	2,065	6,368
Lac la Pluie		265		604	58	..	1,865	840	6,033
Norway House		141		182	37	..	3,297	6,265	2,273
York	13	201		292	64	1,598	964	7,251	5,412
Total	20	2,009	4,437	9,301	413	2,600	27,051	46,657	28,548

District.	Musquash	Musk ox.	Otters.	Raccoons	Squirrels.	Skunks.	Weenucks	Wolves.	Wolvernes.
Mackenzie River	6,976	25	110			..		45	75
Athabasca	4,770		184			..		27	48
English River	10,790		615			..		50	44
Cumberland	18,000		366			4	1	316	6
Saskatchewan	4,656		180			10		1,608	46
Swan River	4,154		237			245	18	1,477	17
Red River	64,578		442	47		362	21	4,045	21
Lac la Pluie	27,192		523	...		1,163	87	...	3
Norway House	6,320		1,018			2	31	...	24
York	9,546	66	2,535		1,415	4	20	128	37
Total	156,952	91	6,210	47	1,415	1,790	178	7,696	321

The foregoing fur statement was extracted from Archbishop Taché's "Sketch of North-Western America," 1868. It was furnished to him by Chief Factor William Mactavish, of Fort Garry, at that time the resident governor of the Hudson's Bay Company in Canada.

The other departments (western, southern, and Montreal) of the service contributed the quantities of furs and peltries lacking in this statement and the totals of same as sold in London. It may, however, be said, that the Company's trade year or outfit begins on June 1 and ends on May 31, following, so that the 1865 returns in question reached England in the fall of 1866, and were only disposed of in the months of January and March, 1867. Previous to the introduction of steam in Athabasca (1884) and Mackenzie River (1886), the trade of Fort Yukon (abandoned 1870) was two years later in getting to market; for instance, that of 1865 reached La Pierre's House in the summer of 1866, and was conveyed by dog trains to Fort McPherson the following winter. In 1867 the returns were forwarded by York boat to Fort Simpson, and thence shipped in 1868 to London by way of Portage la Loche and York Factory, Hudson Bay, where they were duly sold in 1869. La Pierre's House (abandoned 1891) and Fort McPherson returns occupied one year less in transit. Now, however, the entire trade of the Mackenzie River district gets to market as early as that of any other part of the North-West Territories. In making estimates or comparisons between one or more trade years or outfits, it would be well to remember these relative facts.

The immense northern departments of the Hudson's Bay Company may be briefly described as comprising the country extending from the international boundary in latitude 49° north to the shores of the polar ocean in latitude 70° north, a distance of some 1,500 miles. Its longitudinal breadth ranges from 92° to 122° and 141° west, and may average between 1,100 and 1,200 miles. The trading-posts and stations

(many of them have since been abandoned, and others re-organized or newly established) were as follows:

MACKENZIE RIVER DISTRICT.

1. Fort Simpson (headquarters).
2. Fort Resolution.
3. Fort Rae.
4. Fort Liard.
5. Fort Nelson (re-established 1865).
6. Fort Norman (Great Bear Lake).
7. Fort Good Hope.
8. Ft. McPherson (Peel River).
9. Fort Yukon (Alaska).
10. La Pierre House.
11. Big Island.

ATHABASCA DISTRICT.

12. Fort Chipewyan (headquarters).
13. Fort Vermilion.
14. Fort Dunvegan.
15. Fort St. Johns.
16. Fond du Lac.
17. Salt River (now Fort Smith)

ENGLISH RIVER DISTRICT.

18. Isle à la Crosse (headquarters).
19. Portage la Loche.
20. Green Lake.
21. Cold Lake.
22. Rapid River (Stanley).
23. Reindeer Lake.

CUMBERLAND DISTRICT.

24. Cumberland House (headquarters).
25. Nepowin.
26. The Pas.

27. Moose Lake.
28. Chimawawin (Cedar Lake).
29. Grand Rapids (Saskatchewan River).

SASKATCHEWAN DISTRICT.

30. Fort Edmonton (headquarters).
31. Fort Victoria.
32. Fort Pitt.
33. Fort Carlton.
34. Fort à la Corne.
35. Jasper House.
36. Rocky Mountain House.
37. Lac St. Anne.
38. Turtle Lake.
39. Buffalo Lake.
40. Whitefish Lake.
41. St. Albert.
42. St. Paul.
43. Lesser Slave Lake.

SWAN RIVER DISTRICT.

44. Fort Pelly (headquarters).
45. Fort Qu'Appelle.
46. Fort Ellice.
47. Thunder Hills.
48. Egg Lake.
49. Shoal River.
50. Duck Bay.
51. Water Hen River.
52. Fairford.
53. Manitoba House.

RED RIVER DISTRICT.

54. Fort Garry (headquarters).
55. Stone Fort (Lower Fort Garry).
56. Pembina.
57. White Horse Plains.

58. Portage La Prairie.
59. Souris River.
60. St. Laurent.
61. Oak Point.

69. Split Lake.
70. Nelson River.
71. Beren's River.
72. Grand Rapid.

LAC LA PLUIE DISTRICT.

62. Fort Alexander (headquarters).
63. Fort Frances.
64. Rat Portage.
65. Lac Seul.
66. Hungry Hall.
67. Eagle's Nest.

NORWAY HOUSE DISTRICT.

68. Norway House (headquarters).

YORK DISTRICT.

73. York Factory (headquarters).
74. Fort Churchill.
75. Severn.
76. Oxford House.
77. God's Lake.
78. Trout Lake.
79. Island Lake.
80. Jackson Bay.

5.

The statement of the Company's London fur sales from 1853 to 1877, inclusive, so frequently quoted and referred to in these Notes, was given to me many years ago by my old friend, the late Chief Factor Robert Campbell, F.R.G.S., the discoverer and explorer of the Upper Yukon, with its important tributaries, the Lewis, Pelly, and Stewart rivers.

Mr. Campbell was a man of great integrity of character, whose name comes close to the end in a long list of active and undaunted men who, from the days of Sir Alexander Mackenzie and the earlier times of the French-Canadian and English explorers, traversed mountains, ascended rivers and trod the then unknown wilds of North America. It would certainly be impossible to find their superiors, and not, proportionally, very many their peers, in any service. From 1838 to 1848 Mr. Campbell made many remarkable explorations, the result of which, though scarcely appreciated at the time even by the Company for which he worked, can never be forgotten in the history of north-western Canada. He died in Manitoba in the month of April, 1892, aged 80 years.

We have neither time nor space to dilate on the great services rendered to Canada (and the British Empire) by her own splendid North-West Company of Montreal, as well

as by the United Companies since 1821; but the writer must, however, be pardoned for making one or two out of numerous published references thereto. Bancroft, the American historian, writes that, in his opinion,—

Of all associations formed at any time or place for the purpose of obtaining the skins of fur-bearing animals, the North-West Company of Montreal was the most daring, dashing, audacious and ultimately successful. Its energy was only surpassed by the apathy of its great chartered rival, which had been in existence one hundred and thirteen years. Canada had been twenty years in British possession when it was organized, without assistance, privileges or government favours, by a few Scottish Canadians for the better prosecution of a business with which they were all more or less familiar.

Simon Dawson, chief surveyor of the Hind Expedition of 1857-58, who had visited Forts Garry, Ellice, Swan River, and many other Hudson's Bay Company's posts, has put himself on record thus:

It is impossible not to admire the order and system which are everywhere observed in the management of the Company's posts and trade. It is a vast system of economy, carried out with the utmost sagacity and foresight in all its details, and a system, too, which seems to work equally well under circumstances widely different. In the back settlements of Canada, as on the stormy shores of Labrador, among the warring tribes of the plains, or in the frozen regions of the far north, it seems to be alike successful. An organization so perfect can only be traced to the agency of superior management, and I am of the opinion that the success of the United Companies is as much due to the high talent of the officers who have the direction of their affairs as to other circumstances to which it is more frequently attributed, and there can be no doubt that the same judgment, care and economy brought to bear on any pursuit would meet with a very marked measure of success.

In course of a speech delivered in Winnipeg, in October, 1881, the Marquis of Lorne, then Governor-General of Canada and now Duke of Argyll, said:

Let me advert for one moment to some of the causes which have enabled settlers in this vast North-West country to enjoy in

such peace the fruits of their industry. Chief among these must be reckoned the policy of kindness and justice which was inaugurated by the Hudson's Bay Company in their treatment of the Indians. There is one of the causes in which a traders' association has upheld the maxim "Honesty is the best policy," even when you are dealing with savages. The wisdom and righteousness of their dealing on enlightened principles, which are fully followed out by their servants to-day, gave the cue to the Canadian Government. The Dominion to-day, through her Indian officers and her mounted constabulary, is showing herself the inheritor of those traditions. She has been fortunate in organizing the Mounted Police force, a corps of whose services it would be impossible to speak too highly.

At the same place, a few years earlier, the late Marquis of Dufferin expressed himself as follows:

There is no doubt that a great deal of the good feeling existing among the red men and ourselves is due to the influence and interposition of that invaluable class of men, the half-breed settler and pioneer of Manitoba, who, combining as they do the hardihood, the endurance and love of enterprise generated by the strain of Indian blood in their veins, with the civilization, the institutions, and the intellectual power derived from their fathers, have preached the gospel of peace and good-will and mutual respect, with equally beneficent results to the Indian chieftain in his lodge and the British settler in his shanty. They have been the ambassadors between the East and the West, the interpreters of civilization, with its exigencies, to the dwellers on the prairie, as well as the exponents to the white men of the consideration justly due to the susceptibilities, the sensitive self-respect, the prejudices, the innate sense of justice of the Indian race. In fact, they have done for the colony what would otherwise have been left unaccomplished, and have introduced between the white population and the red man a traditional feeling of amity and friendship which, but for them, it might have been impossible to establish. Nor can I pass by the humane, kindly and considerate attention which has distinguished the Hudson's Bay Company in its dealings with the native population. But though giving credit to these fortunate influences among the causes that are conducing to produce and preserve the happy result, the place of honour must be adjudged to that honourable and generous policy which has been preserved by successive Governments of Canada toward the Indian, which at this moment is being superintended and carried out by your present Lieutenant-

Governor, under which the extinction of the Indian title upon liberal terms has invariably been recognized as a necessary preliminary to the occupation of a single square yard of native territory.

It is almost needless to mention that the presence and work of both Roman Catholic and Protestant missionaries in Red River (the former first appeared in 1818 and the latter in 1820), and elsewhere, have also been very important factors in the foregoing beneficial connection.

Gen. Sir William F. Butler, who had visited and sojourned for a brief time at many of the Company's inland posts, thus wrote in 1873:

Wild, desolate and remote are these isolated trading posts of the vast interior, yet it is difficult to describe the feeling with which one beholds them across some icebound lake or silent river as the dog-trains wind slowly amidst the snow. Coming in from the wilderness, from the wrack of tempest and the bitter cold, wearied with long marches, foot-sore or frozen, one looks upon the wooden dwelling-house as some place of rest and contentment. I doubt if it be possible to know more acute comfort, for its measure is exactly the measure of that other extremity of discomfort which excessive cold and hardship have carried with them. Nor does this feeling of home and contentment lose aught for want of a welcome at the threshold of the lonely resting place. Nothing is held too good for the wayfarer—the best bed and the best supper are his. He has perhaps brought letters or messages from long and absent friends, or he comes with news of the outside world; but be he the bearer of such things or only the chance carrier of his own fortunes, he is still a welcome visitor at the Hudson's Bay post.

Sir William further writes that—

In early days Fort Chipewyan, on Lake Athabasca, was an important centre of the fur trade, and in later times it has been made the starting-point of many of the exploratory parties to the northern coast. From old Fort Chipewyan Mackenzie set forth to explore the great northern river, and to the same place he returned when, first of all men north of the fortieth parallel, he had crossed in the summers of 1792-93 the American continent to the Pacific Ocean. It was from new Fort Chipewyan that Simpson

set out to trace the coast-line of the Arctic Ocean, and, earlier than either, it was from Fond du Lac, at the eastern end of Lake Athabasca, that Samuel Hearne wandered forth to reach the polar sea. At times Fort Chipewyan has been the scene of strange excitements. Men came from afar and pitched their tents awhile on these granite shores ere they struck deeper into the heart of the Great North. Mackenzie and Simpson, and Franklin, Back, Richardson, King and Rae rested here before piercing farther into unknown wilds, where they flew the red-cross flag o'er seas and isles upon whose shores no human foot had pressed a sand-print. Chipewyan is emphatically a lonely spot in winter, but when the wanderer's eye meets the red flag, which we all know and love so well, flying above the clustered buildings in the cold north blast, it is on such occasions as this that he turns to it as the emblem of a home which distance has enshrined deeper in his heart. . . . But "Eight hundred thousand pounds sterling sunk in the Arctic Sea," will exclaim my calculating friend behind the national counter; "nearly a million gone forever!" No, head cash-keeper, you are wrong; that million of money will bear interest higher than all your little speculations in times not far remote in the misty future. In hours when life and honour lie at different sides of the "to do" or "not to do," men will go back to times when other men, battling with nature or with man, cast their vote on the side of honour, and by the white light thrown into the future from the great dead past they will read their roads where many paths commingle. To-day it is useful to recall these stray items of adventure from the past in which they lie buried. It has been said by someone that a nation cannot be saved by a calculation—neither can she be made by one. *If to-day we are what we are it is because a thousand men in bygone times did not stop to count the cost.*

These, out of many available and interesting extracts, will now end with one from a former noted Winnipeg divine, the Rev. D. M. Gordon, D.D., now Principal of Queen's University, Kingston.

Indeed, it is difficult to discover what attractions many of the agents of the Company find in their secluded and lonely life. Familiar, in many instances, in earlier days with comfortable and even luxurious homes, and able to procure positions in civilized life where a competence, if not a fortune, was assured, they have chosen instead a life that in many cases cuts them off for a large portion of the year from any intercourse with the outer world, or

any companionship worthy the name, and from all or almost all that we are accustomed to regard as the advantages of civilization. When sickness comes they are dependent upon themselves or on their Indian neighbours. When their children grow up they must send them away to school, often at an expense which their incomes cannot well afford. Their promotion comes slowly at the best, for it is a service in which men live long, and promotion may mean the charge of a post or district farther away from civilization, while the prospect of becoming a chief factor or of being able to retire with a competency is distant and shadowy. Many missionaries will undergo all this and even more than this, but they are supposed to be animated by a clear and lofty purpose that nerves them for exile and hardship if they can but fulfil their aim. Gold hunters will undergo much, but they, too, have a definite object; but the spell of the Hudson's Bay Company's service seems as vague and quite as powerful as that which binds the sailor to his seafaring life, which he may often abuse, but which he cannot abandon. Its agents may be attracted by the freedom from the conventionalities and artificial restraints of society, by the authority which they enjoy over Indians and half-breeds, as well as by the scope for adventure and the opportunity for sport which most of them delight in. Ask them what fascination they find in it and they can hardly tell you. Listen to them when several of them are together "talking musquash" (to use their own term for discussing the business of the Company) and they have not many good words for the service; only when an outsider finds fault with it will they speak up strongly in its defense, and yet let them leave it for a time and many of them long to come back to it. One of them, a young Irish gentleman who had spent years in the service on the Upper Ottawa River and went home to Ireland, informed some of his Canadian friends that he found Dublin awfully dull after Temiscamingue! But, withal, among the officers of the Hudson's Bay Company you find men of education and refinement, competent to fill places of importance in society had they chosen the more settled walks of life.

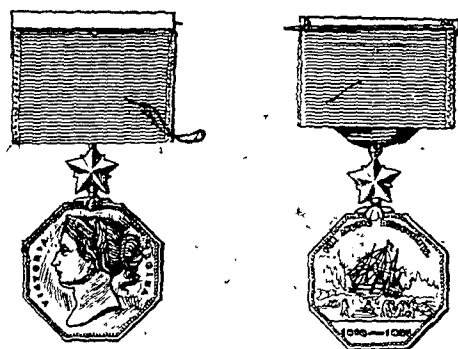
BIBLIOGRAPHY.

The following are the principal works and articles relating to, or containing some references to, the mammals of northern North America consulted by the writer in the preparation of these Notes:

1821. PARRY (WILLIAM EDWARD).—*Journal of a Voyage for the Discovery of a North-West Passage from the Atlantic to the Pacific; performed in the year 1819-20.*
1823. FRANKLIN (JOHN).—*Narrative of a Journey to the Shores of the Polar Sea in the Years 1819, 1820, 1821 and 1822.*
1835. ROSS (JAMES CLARK).—Appendix to the *Narrative of a Second Voyage in Search of a North-West Passage, . . . during the Years 1829, 1830, 1831, 1832 and 1833, by Sir John Ross.*
1836. BACK (GEORGE).—*Narrative of the Arctic Land Expedition to the Mouth of the Great Fish River, and along the Shores of the Arctic Ocean, in the Years 1833, 1834 and 1835.*
1843. SIMPSON (THOMAS).—*Narrative of the Discoveries on the North Coast of America, effected by the officers of the Hudson's Bay Company, during the Years 1836-39.*
1846. AUDUBON (JOHN J.) and BACHMAN (J.).—*The Viviparous Quadrupeds of North America. Three volumes, with colored plates.*
1850. RAE (JOHN).—*Narrative of an Expedition to the Shores of the Arctic Sea in 1846-47.*
1851. RICHARDSON (JOHN).—*Arctic Searching Expedition: A Journal of a Boat Voyage through Rupert's Land and the Arctic Sea, in Search of the Discovery Ships under Command of Sir John Franklin [1847 to 1849].*
1855. BELCHER (EDWARD).—*The Last of the Arctic Voyages, being a Narrative of the Expedition in H.M.S. Assistance, under the Command of Captain Sir Edward Belcher, C.B., in Search of Sir John Franklin, during the Years 1852-53-54.*
1857. ARMSTRONG (A.).—*A Personal Narrative of the Discovery of the North-West Passage, with Numerous Incidents of Travel and Adventure during nearly Five Years' Continuous Service in the Arctic Regions, while in Search of the Expedition under Sir John Franklin.*

- 1857. BAIRD (SPENCER F.).—Report on the Mammals of North America. United States Explorations from the Mississippi to the Pacific Coast in the Years 1853 to 1856, Volume VIII.
- 1859. MCCLINTOCK (F. L.).—Narrative of the Discovery of the Fate of Sir John Franklin and His Companions.
- 1861. ROSS (BERNARD R.).—A Popular Treatise on the Fur-bearing Animals of the Mackenzie River District. Canadian Naturalist and Geologist, Volume VI Article 2.
- 1861. ROSS (BERNARD R.).—An Account of the Animals Useful in an Economic Point of View to the Various Chipewyan Tribes. Canadian Naturalist and Geologist, Volume VI. Article 32. Montreal, 1861.
- 1862. ROSS (BERNARD R.).—List of Mammals, Birds and Eggs Observed in the Mackenzie River District, with Notices. Canadian Naturalist and Geologist, Volume VII. Article 13. Natural History Society of Montreal.
- 1870. TACHÉ (ARCHBISHOP).—Sketch of the North-West of America. Published in French in 1868 and translated into English in 1870.
- 1877. COUES (ELLIOTT) and ALLEN (J. A.).—Monograph of the Rodentia of North America. U. S. Geological Survey of the Territories, Volume XI.
- 1877. COUES (ELLIOTT).—Fur-bearing Animals. A Monograph of the Mustelidae of North America. U. S. Geological Survey of the Territories. Miscellaneous Publications No. 8.
- 1880. MARKHAM (C. R.).—The Great Frozen Sea. A Personal Narrative of Admiral Sir George Nares' Polar Expedition of 1875-76.
- 1881. GILDER (WILLIAM H.).—Account of an Overland Journey, by Lieutenant Schwatka and Himself from Hudson's Bay to King William Island in Search of Relics of Sir John Franklin.
- 1886. TURNER (LUCIEN M.).—Contributions to the Natural History of Alaska. Result of Investigations, made chiefly in the Yukon District and the Aleutian Islands. . . May, 1874, to August, 1881. Arctic Series, U. S. Signal Service, No. 2.
- 1886. GREELY (A. W.).—Three Years of Arctic Service. An Account of the Lady Franklin Bay Expedition of 1881-4 and the attainment of FARTHEST NORTH.
- 1887. NELSON (EDWARD W.).—Report of Natural History Collections made in Alaska between the Years 1877 and 1881. Arctic Series, U. S. Signal Service, No. 3.

1889. TYRBELL (J. B.).—Catalogue of the Mammalia of Canada, exclusive of the Cetacea.
1893. NUTTING (C. C.).—Report on Zoological Explorations on the Lower Saskatchewan River during Summer of 1891.
1895. MERRIAM (C. HART).—Synopsis of the American Shrews of the Genus *Sorex*. North American Fauna, No. 10, pp. 57-98.
1898. ALLEN (J. A.).—Revision of the Chickarees or North American Red Squirrels (Subgenus *Tamiasciurus*). Author's edition, Bulletin of the American Museum of Natural History, X, pp. 249-298, 22 July.
1899. RUSSELL (FRANK).—Explorations in the Far North. Report of an Expedition under the Auspices of the University of Iowa during the Years 1892-94, with Observations on Natural History of Grand Rapids.
1899. PREBLE (EDWARD A.).—Revision of the Jumping Mice of the Genus *Zapus*. North American Fauna, No. 15.
1899. WILLSON (BECKLES).—The Great Company. Being a History of the Honourable Company of Merchants-Adventurers trading into Hudson's Bay.
1900. BRYCE (GEORGE).—The Remarkable History of the Hudson's Bay Company, including that of the French Traders of North-Western Canada and of the North-West, XY, and Astor Fur Companies.
1900. MERRIAM (C. HART).—Descriptions of Twenty-six New Mammals from Alaska and British North America. Proceedings of the Washington Academy of Sciences, 1900, pp. 13-30.
1902. PREBLE (EDWARD A.).—A Biological Investigation of the Hudson's Bay Region. North American Fauna, No. 22.



THE QUEEN'S ARCTIC MEDAL.



LIST OF BIRDS AND EGGS

Observed and Collected in the North-West Territories
of Canada, between 1880 and 1894

BY

R. MacFARLANE

Retired Chief Factor, Hudson's Bay Company



Fort McPherson, Peel River



Fort Chipewyan, Athabasca Lake



List of Birds and Eggs

THE writer of these Notes has for some time back thought of preparing the following brief account of the comparatively small, though somewhat interesting, collections made by him and under his auspices while he held the charge of the Hudson's Bay Company's Fur-Trade Districts of Athabasca, in the northern portion of the new Province of Alberta; New Caledonia, in British Columbia; and Cumberland, in the Province of Saskatchewan. A few of these specimens were also obtained from Forts Rae and Providence, Mackenzie River District.

Before proceeding further he must acknowledge that, in accomplishing this important field work, he was much indebted to the exertions, cheerfully rendered, of the following gentlemen of the Company's service, namely: Factor William M. MacKay; Chief Traders John Wilson, William C. King (and wife), John Reid, and Webster Scott Simpson; and to Messrs. Henry MacKay, Charles Ogden, Joseph Mercredi, Joseph Hourston, Edward Haight, James Flett, Angus McIntosh, Horace Belanger, jr., and A. C. Murray.

Fully three-fifths of the Athabasca portion of the referred-to collections, made during the nesting season of 1880 and 1885, were forwarded to John J. Dalglish, Esquire, a noted Scottish ornithologist, and the balance of both (nearly all of which was unfortunately destroyed by water *en route* to Ottawa) to Dr. Robert Bell, the then Assistant Director of the Dominion Geological Survey at the Capital, while the whole of the considerably more important New Caledonia collections of 1889, and that made in Cumberland in

1890-1891, were shipped direct to the Smithsonian Institution at Washington, D.C., United States.

The country adjacent to the indicated localities in the several stated districts is all, in their season, not only rich in animal life, but also admirably adapted for the nesting of numerous species of land and water birds, which have before now yielded valuable returns of material to older and even later visiting naturalists, while the list under review is but a mere surface contribution, so that a vast and very opulent field still remains open for the operations of many future explorers in this and other interesting departments of Canadian Natural Science.

Although regrets are useless, yet the writer must be permitted to state that he has frequently felt that after leaving the Anderson River, in 1866, where he had the satisfaction of making the large collection of birds and eggs entered in a paper on the subject published by the United States National Museum, Vol. XIV., pages 413-446, 1891, he might and ought to have continued at Forts Simpson, Chipewyan, St. James and Cumberland House, where he was successively stationed from 1866 to 1894, on a somewhat similar basis, the fascinating pastime occupation of collection and observation so well begun and steadily followed there (Fort Anderson) for several years.

Partly in the hope that it may prove as a warning against future self-reproach on the part of any one who may neglect to avail himself of the opportunities pertaining to his official position and its environment, but chiefly in the wish that Canadians may always keep in view the desirability, aye, the necessity, that exists for doing something in the way of elucidating and otherwise advancing the Natural History of the great Dominion, I would here once more urge the Inland and Coast Officers of the Hudson's Bay Company, together with the many resident Mission and Government agents, traders, tourists and other travellers, to devote some of their spare time to this interestingly instructive and creditable pursuit.

In this connection much might also be accomplished by land surveyors and prospectors of gold and other minerals, and it would be well if the Chief Executive of the several railway and telegraph companies duly encouraged all favourably circumstanced officials to do their part in the premises. The Geological Survey Department has a grand record in this regard, and its present officers will, no doubt, continue the good work, while the recent appointment of Professors of Botany and Zoology, etc., in the University of Manitoba, should have the effect of placing the study of Natural Science on a somewhat higher plane than it has hitherto occupied.

It has been already elsewhere stated that during his three years' (1859-1862) sojourn in the Mackenzie River District, the late notable naturalist, Mr. Robert Kennicott, managed to infuse much of his own zealous and indefatigable collecting spirit into all of the Company's northern officers. This, taken in conjunction with the powerful influence exercised by the late lamented Professor Spencer F. Baird, of the Smithsonian Institution, will largely account for the magnificent contributions to the Natural History of the United States and Canada made as a result of their combined exertions. In a lesser degree, the New Caledonia and Cumberland collections may be largely credited to the personal zeal and relative correspondence of the late regretted Major Charles E. Bendire, U. S. A., one of the most successful of American collectors, and the author also of several minor publications, while his splendid "Life Histories of North American Birds," in two volumes (the completion of the work was prevented by his death in 1895. Dr. Ralph was appointed to do so, but his recent departure has again intervened, and a further delay will no doubt take place), will assuredly perpetuate for many years his memory and services to science.

In his valuable and very interesting "Catalogue of Canadian Birds," the well-known Professor John Macoun, of Ottawa, has inadvertently overlooked the presence of

several land and water birds, entered in the aforesaid paper, which certainly breed in the Anderson River country. These omissions are noted herein, while some relative and confirmatory reference is also made, but only, to such of the bird species of the present list as had been met with by us in that northern region of the Dominion.

It may also be mentioned that this paper would have seen the light months ago but for the continued delay in the completion of Bendire's great history, as well as in the publication of the highly interesting report of the valuable work accomplished by Mr. Edward A. Preble (and his brother), of the United States National Museum, of late years, in a large section of the far-north region, embraced in both papers. I had hoped to profit by way of corroboration of my own by his very accurate determinations.

Since the publication in 1891 of the frequently referred-to paper on the Anderson collections of 1861-1866, the canons of nomenclature adopted by the American Ornithological Union, therein followed, have been amended, while their latest (1906) revised and abridged Check List is again adhered to in the present classification.

WATER BIRDS.

1. WESTERN GREBE—*Aechmophorus occidentalis* (Lawrence).

On May 6, 1889, a male example was caught in a fishing net, along with two other grebes, at Fort St. James, Stuart's Lake, the "headquarters" of the Hudson's Bay Company's District of New Caledonia, British Columbia. The native "Carrier" Indians by similar means annually capture many ducks and other water birds. This species is rare, and it is not supposed by them to breed in this quarter. The measurements of this particular specimen, before skinning, were respectively 26.7-45 and 2.7-8 inches. Mr. Brooks states that it is tolerably common in the Fraser valley below

Yale, in the spring and autumn migrations; and Mr. Fannin says it is a common winter resident along the Pacific Coast.

As above mentioned, the late Major Bendire's volume on the Water Birds of North America is not yet published. I will, therefore, have to fall back almost entirely on Professor Macoun's interesting Catalogue of Canadian Birds, in making some brief, necessary and desirable additions to these Notes. There is no record therein, however, of this species nesting west of the Rocky Mountains; but the Professor's own relative observations are of much value, and are here quoted: "Early in June, 1894, a large colony of these birds was found breeding in Crane Lake, Saskatchewan, about one hundred miles east of Medicine Hat. The colony was located in a large patch of bulrushes (*Scirpus lacustris*) about one hundred yards from the shore and in about three feet of water. The eggs were placed on nests made of mud and the old and broken reeds of the last season; these ~~nests were very rudimentary in form, but in all cases there~~ was a slight depression in the centre where the eggs rested, about six inches above the water. None of the nests had more than five eggs, most of them but four, which seemed to be the usual number. The nests were so placed that they would rise and fall with the water, as indeed is the case with all grebes. No other birds were breeding in the vicinity, and the water around the breeding-ground was swarming with individuals which dived, swam, or sunk themselves in the water so that nothing but their curving necks and long sharp bills protruded above it. They doubtless breed in many other lakes in Saskatchewan and Alberta, but no other breeding-grounds are known to the writer."

There are a male and female, taken at Indian Head, Assiniboia (now Saskatchewan), May 16th, 1892, by Mr. W. Spreadborough, in the National Museum Collection at Ottawa, the Dominion Capital; also two sets of eggs, four each, taken at Crane Lake, on June 18th, 1894, by Professor John Macoun.

2. HOLBELL'S GREBE—*Colymbus holbælli* (Reinhardt).

Early in June, 1880, Chief Trader W. Scott Simpson, then stationed in charge of Green Lake Post, English River District, Province of Saskatchewan, discovered a nest of this grebe—constructed in the usual water-hen manner—a mass of semi-floating rushes on the margin of a comparatively small sheet of water.

My notes record but two nests of this species—one containing four and the other five eggs—and both were found at a distance of some forty or fifty miles south of Fort Anderson.

Breeds throughout Northern British Columbia; in fact, from latitude 50° N. to the Polar Sea. There are but four skin specimens; and one set of seven eggs taken June 10th, 1892, in a small lake at Indian Head, Saskatchewan, by Mr. W. Spreadborough, in the Ottawa Museum! In colour the eggs of this grebe are of a rather soiled or dirty white.

3. HORNED GREBE—*Colymbus auritus* (Linnæus).

About the same time, in June, 1880, Mr. Simpson found a nest of this species with one egg therein. He failed to secure the parent bird, which was seen and fired at. Although no specimens were obtained in Athabasca District, at Cumberland House, or in New Caledonia, it is fairly abundant in those sections of North-western Canada; but it is only sparingly represented on the upper Anderson River, Arctic America, where a nest holding five eggs was taken in June, 1866.

The Dominion Museum at Ottawa has six skins representing this species, together with two sets of eggs of eight and nine respectively, taken by Mr. W. Spreadborough at Crane Lake on 12th and 15th June, 1894. Mr. Macoun does not think they breed in colonies like No. 1 of the series.

4. AMERICAN EARED GREBE—*Colymbus nigricollis californicus* (Heerman).

An egg of this grebe was also taken by Mr. Simpson on the above occasion, and while he felt disappointed at his failure to shoot the observed parent, he was satisfied that it was one of this kind, and for the reason that he had secured a sample of the eggs of the three species of *Colymbidæ* which frequent Green Lake during the annual season of nidification. I never met with an example thereof in course of my five years' stay at Fort Anderson; but there is reason, however, to suspect that it is a summer resident at most of the other southern points herein noted.

In his list of birds observed in the Mackenzie River District, the late Chief Trader Bernard R. Ross states that this species extends to Great Slave Lake, where he obtained its eggs about 1860.

Professor Macoun also states that this species breeds in colonies or groups of a dozen or more nests, and that he has "often looked down on them in the small lakes of the interior as they sat in their nests with the water all around them. The floating nests were almost on a level with the water. No down or feathers were ever seen about a grebe's nest. Each of these contained from three to four eggs, usually the smaller number. It also breeds in sloughs in many parts of the prairie region and British Columbia, including lakes near Kamloops, in that Province." In the Ottawa Museum there are three skin specimens, and three sets of five eggs each, taken by Mr. W. Spreadborough, the former in Manitoba and British Columbia in 1889, and the latter at Crane Lake, June 14th, 1889.

7. LOON—*Gavia imber* (Gunn).

On 15th June, 1889, the late Mr. Charles Ogden, at that time in charge of Fort George, New Caledonia, found two nests, each holding two eggs. They were built on two very small turf islets on the border of a small lake some

twenty-five miles from the post. The nest was a shallow cavity thereon, with a scanty lining of decayed leaves, and at a distance of several yards from the shore. The parents of both were seen and fired at. Another nest containing a freshly-laid egg, similarly situated and built a few feet from the beach on a larger sheet of water, was brought to him by an Indian hunter, who saw the mother—a great black-billed loon. Mr. Angus McIntosh, the Hudson's Bay Company's trader at the north end of Lake Babine, B.C., in the end of May, 1889, set a snare which secured a female bird on her nest of two eggs, placed on a small rocky islet on a neighbouring lake. Three eggs were also obtained near Cumberland House, lower Saskatchewan River, in the spring of 1890, and several birds were shot at Moose Lake Post, and sent to me by Mrs. William C. King, of the same Company, Cumberland District. A male example, shot at Fond du Lac, Great Slave Lake, was secured by the late Mr. James Flett, of Fort Resolution, in June, 1885, and it was duly forwarded to Dr. Robert Bell, of the Dominion Geological Survey at Ottawa. Fort Anderson also furnished the Smithsonian Institution at Washington with the eggs of nine nests of this species some forty years ago. They were then noted as being abundant on the shores of Franklin Bay.

Mr. Macoun states that "nearly every small lake throughout the country, except in the prairie region, is tenanted in summer by a pair or more of these birds, and the larger lakes by many pairs. All the members of the Geological Survey of Canada staff who have found loons' nests agree with MacFarlane that they lay only two eggs and that no nest is built, but a small depression made in the gravel close to the waters of the lake. In the Laurentian country the eggs are always placed on greenish gravel, and are hard to see. In two cases only have nests been found on rock, and these were close to the water."

The Ottawa Museum collection contains but two males and two sets of eggs of two each of this species!

8. YELLOW-BILLED LOON—*Gavia adamsii* (Gray).

In the spring of 1885, a hunter belonging to Fond du Lac, Lake Athabasca, shot a fine specimen of this beautiful loon, which was forwarded to Mr. John J. Dalglish, of Edinburgh, Scotland. Although this species was very numerous on the polar shores of Liverpool and Franklin bays, where it no doubt breeds, yet we never succeeded in finding even one well authenticated set of its eggs, while it is possible that the two *Adamsii* eggs referred to on page 452 of Vol. II. of the "Water Birds of North America," by Baird, Brewer and Ridgway, may have belonged to the great northern diver. An Eskimo of our bird and egg gathering party observed a male *Somateria V. nigra* struck and killed on the wing by an attacking bird of the species under review. It is entered as "abundant on Great Slave Lake," in Mr Ross's "List of Birds observed in the Mackenzie River District." There is not a single skin or egg of this loon in the Dominion Museum at Ottawa!

9. BLACK-THROATED LOON—*Gavia arcticus* (Linn.).

Early in June, 1885, a half-breed hunter brought into Fort Chipewyan, the "headquarters" of the Athabasca District, where the writer then resided, the female parent, with a set of eggs which he claimed to have obtained from her nest. The latter, he stated, was a mere depression in the ground on the margin of a large pond or sheet of water. Both were forwarded to Mr. Dalglish, who also identified them as *Urinator arcticus*,—the old name of this loon. This species undoubtedly breeds in the Arctic territories of the Dominion, although I have personally known of but one authenticated set of its eggs, procured at Fort Anderson, season 1865, and which is now probably at rest among the grand Oölogical Collection of the United States National Museum in Washington, D.C. Mr. Ross secured a set of eggs thereof in Mackenzie River.

The Museum at Ottawa holds but one specimen, a male, obtained by Dr. R. Bell in Hudson Bay in 1884, and no eggs!

10. PACIFIC LOON—*Gavia pacificus* (Lawrence).

On the 29th of May, 1889, a nest holding but one egg was found by an Indian near Stuart's Lake, B.C., which was constructed exactly like that described under *G. arcticus*. Loons are not, by any means, common in New Caledonia District, except, perhaps, on the western coast of the Province. Early in June, 1890, two nests, one of them containing one, and the other two eggs, were discovered by a native in the country situated to the north of Cumberland House, which he asserted to have belonged to this species. This, however, is the most abundant of all the loons usually present in the region of Anderson River. Nests were found by us in the forest sections, on the "Barren Grounds," and on the shores and small islands of the Polar sea-coast of Franklin Bay,—165 in all,—most of which contained two eggs. This loon is noted for its peculiarly loud, weird, and prolonged shrilly scream during the season of nidification.

There are no specimens whatever of this loon in the National Museum at Ottawa! This is surely a matter worthy of some consideration, and the remark is also applicable to many other Canadian birds. It may be here mentioned that the eggs of the several members of the *Urinatoridae* bear a strong family resemblance to each other.

11. RED-THROATED LOON—*Gavia lumme* (Gunn).

Although its yearly range in summer is equal to that of *G. pacificus*, it is the least numerous of the genus, while only forty identified nests were found within the same time, and in the stated Anderson locality, as against 165 nests of the Pacific species. Most of both contained two eggs, the maximum number laid by all loons, according to native report.

and personal observation. *Gavia arcticus* and *G. lumme* are, however, among the referred to omissions in Professor Macoun's "Catalogue of Canadian Birds."

There are but three specimens and four eggs in the Dominion Collection at Ottawa.

36. POMARINE JAEGER—*Stercorarius pomarinus*
(Temminck).

An example of this bird was shot at Fort Resolution, Great Slave Lake, in the spring of 1887, and Professor Macoun states that it is now on hand in the Museum of the Dominion of Canada, at Ottawa, Ontario. Although we obtained four skins of this jaeger at Fort Anderson, including one shot on 11th July, 1865, in Franklin Bay, we did not succeed in becoming acquainted with its eggs. Mr. Ross found it very rare on Great Slave Lake. There are no eggs, and but the referred to skin, procured by me in 1887 at Great Slave Lake, in the Ottawa Museum!

37. PARASITIC JAEGER—*Stercorarius parasiticus* (Linn.).

A bird of this species was received by Mr. James Flett, of Fort Resolution, early in June, 1885. He did not think it bred there; but as published in the "Proceedings of the United States National Museum," Vol. XIV, for 1891, we observed a large number of this jaeger, and also found several nests thereof on each of our four collecting expeditions (1862-1865), between Fort Anderson and Franklin Bay. A few specimens were also obtained from the Eskimos of the lower Anderson River.

Under this heading the following appeared in the aforesaid paper: "There is, of course, no darkness for several months in summer within the before-defined Anderson section of the Arctic regions, while in June the sun at midnight is several degrees above the horizon. During the period,

however, answering to the night in southern latitudes, we often observed, while traversing the 'Barrens' and on the sea-coast, as many as twenty and thirty birds of the genus *Stercorarius* sitting or standing on the ground, each bird at a distance of a few feet from its fellow. They probably reposed at such times, as they never moved except when closely approached, while no eggs were ever discovered in the vicinity of these resting places. During the day, also, two or more birds (males) were frequently noticed quietly reposing or moving very slowly along the ground, and this, too, where no nest actually existed." The nest of a jaeger is a mere depression in the soil, scantily lined with a few withered leaves and grasses, etc., and as the eggs greatly resemble their surroundings, the nest is frequently very difficult to discover. The eggs are indistinguishable from those of other species. Mr. Ross has four or five different jaegers in his "List of Mackenzie River Birds," and he also secured several eggs of *S. parasiticus*. There is not, however, a single specimen skin or egg thereof in the Museum at Ottawa!

51. HERRING GULL—*Larus argentatus* (Brunn).

In the spring of 1890, a female gull was shot near Cumberland House. This and several other species of *Laridæ* no doubt nest at various points throughout the District. A similar remark will apply in reference to its presence in Athabasca and British Columbia, while we ascertained that it was quite common on the Northern coast, the lower Anderson River, on the Wilmot Horton River, and in the Barren Grounds, from each of which localities eggs were obtained. It may be mentioned that the *L. argentatus smithsonianus*, 51a variety of the Herring Gull, does not appear in the revised Check List of the Ornithological Union for 1906; and the American bird is now believed to be identical with the European herring gull. Mr. Ross states that some of its eggs had been secured by him in 1860 and 1861.

Professor Macoun found this gull breeding in abundance

on Crane Lake, Saskatchewan, in June, 1894. He had previously observed them in Gull Lake, Victoria, Ontario, in 1868, and in 1870 in Addington County, of the same Province. Gull nests as a rule are a mere cavity in the ground, scantily lined with a few withered weeds and grasses, and contain two and three eggs each. They are of a light blue colour and generally unspotted. The Dominion Museum holds but one skin, taken at Toronto by Mr. S. Herring in 1884, and thirteen eggs, mostly from Crane Lake, secured by Mr. W. Spreadborough the same season!

54. RING-BILLED GULL—*Larus delawarensis* (Ord).

This species is believed to breed in Cumberland and British Columbia. There is no mention of it among the Anderson collections, nor was it met with on the Andersons; neither does it figure in Mr. Ross's list. It is, however, fairly common in British Columbia. Mr. W. Spreadborough found this gull very abundant, breeding in great numbers on an island in Crane Lake. Nest on the ground, made of dry grass; eggs smaller than those of the herring gull, but never more than three, often only two in number. The Ottawa collection contains only one specimen (!), taken by Mr. Herring in Toronto, season 1882, and sixteen eggs from Lake Manitoba, Crane Lake and Labrador, in the years 1893, 1894 and 1895.

59. FRANKLIN'S GULL—*Larus franklinii* (Swainson and Richardson).

A male example of this rosy gull was shot near Cumberland House early in June, 1890. It was forwarded to Washington, where it was duly identified by the late lamented Major Charles E. Bendire, the Curator in charge of the Oölogical Department of the U. S. National Museum. Although we failed to secure any skins or eggs of this species, there is reason to believe that this beautiful bird breeds in Canada's Arctic America. It is also said to be abundant in Manitoba, Saskatchewan and Alberta, where it breeds.

Mr. Spreadborough states that he "found hundreds of nests on June 13th, 1894, in a marshy lake about three miles south-east of Crane Lake. The nests were very bulky, made of reeds placed on the marsh, and floating in about two and a half feet of water. Eggs in each case three. Incubation was far advanced." There are five bird specimens, taken at Indian Head, in June, 1892, and at Crane Lake, in June, 1894,—also twenty-two eggs from the above marshy lake near Crane Lake,—in the Dominion Museum at Ottawa.

60. BONAPARTE'S GULL—*Larus philadelphia* (Ord).

On June 1st, 1885, the late Chief Trader John Reid shot a male bird at Fort Providence, Mackenzie River, and it was thereafter forwarded to Dr. Bell at Ottawa. On 13th June, 1889, an Indian brought in four eggs and the head of a tern, which he said was one of their parents, which I more than doubted, while on receipt of same, Major Bendire classed the eggs as *L. philadelphia*. The nest was found along the shores of a fairly large lake, thirty miles or so to the eastward of Fort St. James, B.C. Mr. Raine, of Toronto, states that "this species usually makes its nest in bushes and willows near the water; but in localities where these conditions are absent, it nests on the ground." In the Anderson River region, however, where we obtained thirty-seven nests between the dates of 10th June and 10th July (during five seasons' residence), all of them were found built on spruce or other trees, at heights varying from fifteen to twenty feet, and with one exception, which was composed of velvety leaves held together by stringy turf, they were constructed of small sticks and twigs, lined with hay and dry moss. They seldom lay more than three eggs. The parent birds vehemently object to the robbery of their nests, even in the interests of Science.

The eggs of this species are similar to those of No. 59, but are smaller in size. The Ottawa Museum contains six specimens, one of which was taken by the late Dr. G. M.

Dawson, Director of the Geological Survey of Canada, at False Bay, Gulf of Georgia, British Columbia, in 1885, together with one solitary egg found by Mr. Raine at Black Lake, Saskatchewan, on June 10th, 1891.

70. COMMON TERN—*Sterna hirundo* (Linn.).

Mr. John Reid shot a male and female of this tern at Fort Providence in the spring of 1885, which, together with a sample egg, was sent to Dr. Bell. They breed in numbers on islets in the Mackenzie River, as well as in similar positions on the shores of Great Slave and other inland lakes. They also breed extensively on the Arctic coast, and in many other suitable localities throughout the entire region under review. Although its eggs were not *desiderata*, and we did all we could to discourage their gathering, yet a large number were received at Fort Anderson for shipment to Washington. There are several specimens and twenty-seven eggs in the Dominion Museum collection at Ottawa.

125. AMERICAN WHITE PELICAN—*Pelecanus erythrorhynchos* (Gmelin).

This pelican is fairly abundant and nests on rocky islands in the vicinity of the Slave River Rapids near Fort Smith, and it is also sparingly present on the southern shores of Great Slave Lake to Big Island, at the outlet of the Mackenzie River therefrom, while an occasional bird or two have been observed as far north as Fort Providence. They are not unknown at Pelican Narrows, Cumberland.

Richardson says they deposit their eggs on small rocky islands, and this, Professor Macoun states, accords with our own knowledge. Their nests are merely depressions in the gravel or sand, generally lined with an algaoid matting that is often found blown up on the shore. Eggs, one to three, very much like that of the Canada goose, but the surface of the shell is rougher. The Ottawa Museum specimens

consist of but one skin, taken on Lake Winnipeg, July, 1884, by Mr. Thomas Weston, and four eggs, found on a small island at the western end of Lake Winnipegosis, Manitoba, by Mr. J. B. Tyrrell, in June, 1889!

129. AMERICAN MERGANSER—*Mergus americanus* (Cassin).

In the 1891 paper on "Arctic Birds and Eggs," I expressed my belief that this merganser bred in small numbers in the country to the south of Fort Anderson, where we received the eggs of one or two nests, which were afterwards lost. In 1890 an example was shot near Cumberland House, and it was duly forwarded to Washington.

Is not entered in Mr. Ross's list. Breeds in British Columbia.

The Ottawa Museum contains one skin, taken by Mr. S. Herring in the Toronto marsh, and another in the harbour of Victoria, B.C., by Mr. W. Spreadborough. Mr. A. P. Low took a nest of this species from under low-spreading spruce trees on the upper Hamilton River, Labrador, in June, 1894. The eggs are in the Dominion collection and are usually of a creamy colour.

130. RED-BREASTED MERGANSER—*Mergus serrator* (Linn.).

I again quote from the aforesaid paper: "Several nests of this not particularly numerous merganser were obtained in the vicinity of Fort Anderson, and also in the wooded parts on both sides of the river north and south of the post. One was found on the border of the 'Barrens' to the east, under a fallen tree, close to a small lake. It was a scooped-out hole lined with feathers and down, and it contained six eggs with their contents in a partially embryo-formed condition; the female was snared on her nest. Ten was the maximum number of eggs found among the obtained specimens." A couple of skins of this species were procured in New Caledonia, summer 1889, and it no doubt breeds in

the district, as well as in Athabasca. At Cumberland House and Pelican Narrows it is also present for a like purpose, while several nests, as just mentioned, were forwarded to the Smithsonian Institution from Fort Anderson. Mr. Ross reports them as common on the Mackenzie to Peel's River.

The nest of this merganser is usually well concealed, and the eggs are of a creamy buff colour, resembling those of *M. americanus*. The Ottawa Museum has but three skins, and the eggs of several nests taken by Mr. Low in Labrador, in June, 1894!

131. HOODED MERGANSER—*Lophodytes cucullatus* (Linn.).

An example bird, well identified, was shot near Cumberland House in the spring of 1891. It is a rare bird in that quarter, as well as in the Mackenzie River district, where Chief Trader Bernard R. Ross found no traces thereof beyond Fort Resolution, Great Slave Lake. Said to be fairly common in British Columbia and northern Manitoba.

The Ottawa Museum holds seven specimens, taken at Toronto, Ottawa, Indian Head, Banff, and Kamloops, but no eggs thereof!

132. MALLARD—*Anas boschas* (Linn.).

A male skin of this duck was obtained at Fort Resolution, and that of a female from Fond du Lac, Athabasca, in 1885, which were later packed up and forwarded to Dr. Bell. In 1882 Mr. Scott Simpson found a nest containing three eggs at Green Lake, English River district, of which Mr. John Dalgleish became the recipient the following season. Mrs. W. C. King, then of Moose Lake post, Cumberland District, secured, with both parents, a nest holding six eggs, early in the month of June, 1890. The mallard is very abundant, especially throughout all copiously-watered land sections on both banks of the Saskatchewan River to its outlet in Lake Winnipeg. It is also very numerous in the vicinity of Fort Chipewyan, and in the deltas of the Athabasca, Slave and Mackenzie rivers.

The mallard lays from six to eight eggs in a nest composed of down and feathers from the female bird, placed in a hole or depression in the ground, generally in close proximity to small clumps or tufts of willow and scrub pine. Egg samples were collected in various sections during our five years' residence at Fort Anderson. Common in British Columbia. Mr. Ross obtained eggs and skins thereof at Fort Resolution in 1860.

Professor Macoun states: "I have found many nests of this duck in various parts of the country. Sometimes they are quite near the water, and at other times several hundred yards away. Some of them breed very early in the spring—so early, in fact, that I have found eggs cracked with the frost." The National Museum at Ottawa contains but five specimens and several eggs, taken in Manitoba, at Indian Head, at Edmonton, and on Vancouver Island!

133. BLACK DUCK—*Anas obscura* (Gmelin).

This species is probably a summer visitor to several of the breeding fields mentioned in these Notes; but we, however, failed to obtain any of its eggs, even on the Anderson River, where it is not uncommon, and where, also, several birds were shot. At Fort Chipewyan many hundreds of this and other ducks were shot and used for food every season, both by the Company's servants, missionaries, the natives, and other residents. A similar remark will apply to other northern posts and stations, as well as to those of Cumberland District. Not entered in Mr. Ross's Mackenzie River List. In position and composition the nest is similar to that of No. 132, while the eggs are of a pale dirty-yellowish drab, and the same in numbers. The Ottawa collection holds only one specimen skin and two sets of eggs!

135. GADWALL—*Chaulelasmus streperus* (Linn.).

The late Mr. Joseph Mercredi, clerk in charge of the Company's post at Fond du Lac, Athabasca, procured for

me a female bird, but no eggs, spring 1884, and while there are no examples of either from the Anderson, New Caledonia, Fort Chipewyan, Cumberland, or the distant Mackenzie River, there is much reason to believe that this particular duck is not only tolerably numerous, but also breeds annually throughout the sections of country in question. Richardson says it breeds in numbers to latitude 68° north.

The colour of the eggs is pale buff. Mr. Macoun mentions that on a small knoll in a marsh at Crane Lake he found a nest in a tuft of grass, on June 11th, 1894. It contained five fresh eggs, while at the same time young of the mallard, of a good size, were swimming around. The Ottawa Museum specimens consist of two pairs of birds and several sets of eggs—part taken at Crane Lake, June, 1894, and part at Cypress Lake, Saskatchewan, on 29th June, 1895.

137. BALDPATE—*Mareca americana* (Gmelin).

A single skin was received from Fort Resolution, and sent to Dr. Bell, in the summer of 1885; but the species is common enough in most of the above defined sections right up to the Anderson and the "Barrens" to the eastward thereof, and it is also present in New Caledonia District. In the early sixties of the last century, a number of nests were discovered in the neighbourhood of Fort Anderson, and a few also near Swan River, one of the principal affluents of the Wilmot Horton River.

Mr. Ross obtained its eggs in 1861. The Ottawa Museum contains but one pair of birds, and nearly two sets of eggs of this species!

139. GREEN-WINGED TEAL—*Nettion carolinensis* (Gmelin).

In June, 1880, Mr. Simpson, of Green Lake, found a nest, holding but one egg, which he supposed to belong to this teal. It was sent to Mr. Dalglish, who failed to iden-

tify it. About the same date in 1885, Mr. Reid, at Fort Providence, secured the contents (three freshly-laid eggs) of a nest composed of a few withered leaves placed in a small cavity or depression in the ground. The parent was seen and well recognized, and the eggs were forwarded to Dr. Bell. At Fort Anderson this species was believed to be the rarest of the ducks known to breed in that region, where only one nest rewarded our efforts. At the other referred-to points, however, it is more or less abundant.

Mr. Ross says it is abundant in the Mackenzie River District, and also found some nests.

The nest is usually found at some distance from water, and the number of eggs vary between six and nine.

There are three specimens and sixteen eggs in the Ottawa Museum.

140. BLUE-WINGED TEAL—*Querquedula discors* (Linn.).

On June 1st, 1885, a nest belonging to a duck of this species was found, and its female parent was clearly seen and identified by the Indian finder, near Fort Providence, Mackenzie River. It was similarly constructed to that of most ducks, and held three lately-laid eggs, which were duly forwarded to Mr. Dalgleish. We did not meet therewith at Fort Anderson; but, while it is common in Athabasca and Cumberland, it is rare on Great Slave Lake, where, however, Mr. Ross says he procured some eggs about the year 1861. Rare in British Columbia.

The nest of this duck is said to be composed of fine grass and down, usually placed in the hollow of a tuft of grass, not far from water,—the number of eggs range between seven and twelve to a set. There are only five skins, and one set of twelve eggs—the latter from Mr. Dippie—in the Dominion Museum at Ottawa!

142. SHOVELLER—*Spatula clypeata* (Linn.).

In May, 1890, Mrs. W. C. King procured a male and female bird at Moose Lake, and early in June another male

was shot near Cumberland House. This duck undoubtedly breeds at both places and also along the lower Saskatchewan River; but it is not common in the northern portion of the Canadian continent, especially in the Anderson region of Arctic America, where we found it very rare, as but two examples, *minus* eggs, were obtained during our five seasons' residence at Fort Anderson.

Mr. Ross claims that he secured its eggs in 1861.

Professor Macoun also states that on 9th June, 1894, while beating rose thickets for nests, he flushed a female off her nest, containing ten eggs, too much incubated to be taken. Shortly after he flushed another, but there were only eight eggs in the set, quite fresh. Both nests were under rose bushes on dry ground, and lined with grass and down. Two days later he found two more nests in a similar position, one having eleven and the other nine eggs. The Museum at the Capital holds eight specimens and several sets of eggs.

143. PINTAIL—*Dafila acuta* (Linn.).

Two skins of this abundant and widely distributed species were obtained from Fond du Lac, Athabasca, where it breeds, and they were sent to Dr. Bell. Its eggs not being considered as *desiderata* at Washington, no effort was made by us to secure any in Athabasca, New Caledonia, or Cumberland. We found this duck very numerous in the Anderson River country, as well as on the coast shores of Liverpool and Franklin bays. A similar remark would prove equally applicable to the eggs of several species of duck, and also to a number of other well-known land and water birds of North America.

It may be of some little interest to report that the nest is usually a small cavity or depression in the ground, lined with down, withered leaves, and a few feathers, and that it lays from six to eight eggs, which are larger than those of the shoveller. The nest is generally in the neighbourhood of a land-locked sheet of water. The parents desert their nests

almost immediately after the young are hatched, and take to the water with them.

Mr. Ross became acquainted with the pintail eggs in 1861.

The Museum specimens at Ottawa consist of four skins and one fine set of eleven eggs, taken at Twelve-mile Lake, Saskatchewan, and others taken at Rush Lake by Mr. Raine.

144. WOOD DUCK—*Aix sponsa* (Linn.).

On the 15th of May, 1885, Mr. Reid, of Fort Providence, found a nest of this duck in a hole in a dry spruce tree. It was composed of hay and feathers and contained two freshly-deposited eggs. The female parent was shot, but afterwards lost. Mr Dalglish received and apparently identified the eggs. Early in June, 1890, Mrs. King obtained a specimen bird at Moose Lake, and about the same time a nest holding but one egg was found near Cumberland House, and it was forwarded to Washington. I do not remember having ever observed a "tree duck" at Forts Chipewyan or Good Hope, the Anderson River, or in New Caledonia, B. C. A full set of eggs ranges between six and twelve, and are something between a buff and a pale green in colour. The Ottawa Museum has not a single egg, and but three skins of this species, in its Dominion collection!

146. RED-HEAD—*Aythya americana* (Eyt).

This species is fairly abundant and doubtless breeds in Cumberland District, although we failed to secure any of its eggs. A male example was, however, shot at the Pas, lower Saskatchewan River, in the beginning of June, 1890. It is a rare bird in the Northern Territories of Canada. Chief Trader B. R. Ross saw a few at Fort Resolution, Great Slave Lake, where he also secured a nest with its eggs.

Mr. Raine observes: "It is a remarkable fact that the red-head and the canvas-back often lay their eggs in one

nest. I have never seen this statement recorded in any ornithological work. This was first brought to my notice on June 18th, 1891, when I found a nest at Long Lake containing eight eggs of the canvas-back and four of the red-head. The eggs of the former were larger than those of the latter and of a different tint, being of the usual ashy-green, while the four eggs of the red-head were smaller than those of the other, and were of a buff-drab tint and very glossy. There was not the slightest doubt about the eggs being laid by both species. Since then my collectors have frequently found nests containing eggs of the canvas-back and red-head in the same nest." On May 20th, 1897, Mr. Baines found a nest at Crescent Lake, Manitoba, containing nine eggs of the canvas-back and seven of the red-head. The nest was built in rushes in shallow water. Museum specimens four, and several sets of eggs, are in the Ottawa collection.

147. CANVAS-BACK—*Aythya vallisneria* (Wilson).

This remarkably fine food duck is numerous in almost every section of the country referred to in this paper. Even at Fort Anderson, latitude 68° 30' north, some forty years ago, we obtained a few sets of its eggs, where it was found to be tolerably abundant during the annual season of nidification. At Moose Lake, Cumberland, Mrs. W. C. King found two nests (and secured a parent of each), one of them in the end of May, holding three eggs, and the other early in June, 1890, containing six eggs. A male example was shot near Cumberland House the same season. Abundant in the Fort Chipewyan marshes. Mr. Ross collected a number of its eggs in Mackenzie River, as did also Chief Trader Lockhart.

Professor Macoun states that he has "seen it in immense numbers on Lesser Slave Lake and in the Peace River country. He is satisfied that it breeds from Indian Head northwesterly to Fort Yukon, in Alaska. The country north-west of Edmonton suits it well, as there are many marshes full

of *Scirpus lacustris* and tall grasses, among which it likes to breed." The Ottawa Museum holds but three specimens (one female and two males) and three sets of eggs, taken at Edmonton, Alberta, in the spring of 1897!

148. AMERICAN SCAUP DUCK—*Aythya marilla* (Linn.).

Major Charles E. Bendire's receipt list of eggs from Cumberland House, season 1890, records eight specimens, belonging to two nests of this duck, which is certainly a summer visitor of the Saskatchewan Valley. It is fairly abundant in British Columbia, and it is also equally common in mid-northern Canada, but rare at Fort Anderson and in the district of Mackenzie River. Mr. Ross, however, obtained a number of its eggs in 1860-1861.

The nesting sites are usually a dry, grassy tussock or knoll, close to a pond of water,—a shallow cavity in the ground, lined with grass, feathers and down. The nest contains from six to twelve eggs. The eggs are large for the size of the bird, like those of a merganser, but are more of a buff colour, and their peculiar shape, which is almost invariable, best distinguishes them. The Ottawa Museum contains but one male bird, taken by Mr. S. Herring, of Toronto, and one set of six eggs, taken on James Bay, near Whale River, on 16th June, 1896, by Mr. W. Spreadborough!

149. LESSER SCAUP DUCK—*Aythya affinis* (Eyt).

There is a strong impression that this species, while comparatively rare, it is still more abundant and more widely distributed than *A. marilla*. At all events, we managed to secure over a dozen nests thereof at Fort Anderson, and they were usually found in the midst of a swamp—a mere scooped-out hole or natural depression in the centre of a tuft of turf or tussock of grass, less or more lined with down, feathers, and dry grasses. Nine was the general number of eggs in a nest, though a few contained no more than six or seven. We never tried to collect any at Fort Chipewyan, Cumberland, or St. James. Mr. Ross procured some of its eggs.

Nelson says this duck is a rare straggler in Alaska, but Fannin and Brooks report it tolerably common in British Columbia. The latter says it winters on Lake Okanagan, B.C. Mr. Raine states that on 15th June, 1892, he found three nests containing eggs on a small island where a colony of avocets were nesting. The eggs, like the preceding species, are dark drab, but of course much smaller in size. The National Museum has ten fine specimens, and a number of sets of eggs of this species, in its Ottawa collection.

150. RING-NECKED DUCK—*Aythya collaris* (Donovan).

There can be little doubt that at least a few stragglers of this somewhat rare northern duck have been met with at Fort Anderson, and at other points in the extensive district of Mackenzie River to the south, and no doubt also at Fort Chipewyan and elsewhere in Athabasca and Cumberland Districts. The species was not met with by us in New Caledonia District. A bird was, however, shot by Mr. H. Mackay at Pelican Narrows, Cumberland, in the spring of 1891, and another at Cumberland House about the same time. On June 19, 1891, Mr. Raine, of Toronto, found a nest containing nine eggs at Long Lake, Manitoba; "the nest was made of sedges and lined with grasses, feathers and down, a basket-shaped structure built in the centre of a tussock of rushes. The eggs are olive gray with a buffy tinge, and are very similar to eggs of the scaup duck in size and colour."

There is but one skin thereof, and no eggs, in the National Museum at Ottawa!

151. AMERICAN GOLDEN EYE—*Clangula americana* (Bonaparte).

Although we have never obtained any authenticated examples of its eggs, yet I firmly believe that I have met the bird itself, not only at Forts Simpson, Chipewyan and Cum-

berland, but also on one or two occasions at Fort Anderson. It is said to "prefer nesting in trees at a height of from fifteen to twenty-five feet from the ground. The nest is composed of grass, leaves and moss lined with feathers. The eggs, eight or more in number, are of an ashy green colour. It lays about the middle of May or later." Mr. Ross states that it extends to the Arctic coast and is not rare. There is only one skin, and two sets of eggs, taken at Indian Head, in June, 1892, in the Ottawa collection!

152. BARROW'S GOLDEN EYE—*Clangula islandica* (Gmelin).

I must here quote the note made under this duck heading in the 1891 referred-to paper: "Although an individual bird of this species was shot by Mr. Murdo McLeod in the vicinity of Fort Anderson on 29th June, 1863, and a male example obtained there on 14th June, 1864, yet our best efforts failed to discover a single nest in that or any other quarter, and I think it may be classed among the rarest of the ducks visiting that region." Nor have we since then, to my knowledge, ever come across any well-identified specimens thereof in the far north, Cumberland, or New Caledonia, B.C. Dr. Richardson named the species from an example taken in the Athabasca Pass. Mr. Fannin found this duck very abundant on nearly every lake along the Cariboo Road, B.C. He also presented with a fine male,—the only specimen therein!—the Museum at Ottawa.

153. BUFFLE HEAD—*Charitonetta albeola* (Linn.).

While the Cumberland House field-notes record the shooting and the forwarding of two male examples of this species to Washington, I am at present unable to trace the history of the three eggs received there by the Curator of the Oölogical Branch of the Smithsonian Department of the U. S. National Museum. It is, however, far from scarce in the Company's Trade Districts of Cumberland, English

River, Athabasca and Mackenzie River. Mr. Ross states that he obtained some of its eggs in the last-mentioned district.

Mr. Raine states that a "set of seven eggs in his collection was taken out of a tree at Long Lake, Manitoba. When trees are scarce, this accounts for this little duck laying its twelve eggs at the end of a gopher's burrow in a bank along the side of a small lake one mile north of Rush Lake. Another clutch of ten eggs was taken out of a hole in a tree at Oak Lake, Manitoba, May 25th, 1890. The eggs are more rounded than those of any other duck. The eggs of the buffle-head are larger than those of the teal and of a darker and warmer tint." The Ottawa Museum contains eight specimens, but no eggs, of this species!

154. OLD SQUAW—*Harelda hyemalis* (Linn.).

This duck seems to be a more distinctively Arctic and sea-coast breeding bird than the pintail (*Dafila acuta*), or indeed any other of the family. In proceeding to and returning from its favourite breeding grounds it is frequently met with in very large numbers, while it is particularly abundant along the northern shores of continental Canadian America. We often observed thousands of the "old squaw" apparently feeding and otherwise disporting themselves in the sea-water of Franklin Bay. In course of our five years' residence at Fort Anderson considerably over one hundred nests were taken, and the number of eggs found in them varied between five and seven. In its construction the nest generally very much resembles that of the pintail. From personal observation, also, I have come to the conclusion that the usual quantity of down necessary for a duck's nest is seldom met with before a full set of eggs has been deposited, and that the process of lining it with down, which is plucked off from the female, goes on simultaneously with their laying.

In the aforesaid paper on "Arctic Birds and Eggs," pub-

lished in 1891, it was stated that if present on the polar coast, it was surprising that we had never come across a duck of the Harlequin species—*Histrionicus histrionicus*; but since that time Mr. Raine, of Toronto, writes that it does breed at the mouth of the Mackenzie River, where one of his collectors found and sent him eight eggs with the skin of the parent bird. The nest was found on the 19th of June, 1894. It was built on a high bank, near some ice floes, under sticks piled up by overflow water in the spring. The eggs of this species have seldom been obtained in North America. It, however, breeds in Iceland, and lays from six to eight eggs, seldom more. Mr. Turner also mentions that the only nest of *Histrionicus* he ever saw was placed near Ilinlik village, on Unalaska Island.

It is, however, entered as rare on Mr. Ross's Bird List. There are but three specimens, and some eggs, in the Dominion Museum collection!

161. PACIFIC EIDER—*Somateria V-nigra* (Gray).

A male example of this eider was shot near the outlet of the Mackenzie River, in latitude 69° north, and it was afterwards forwarded to Mr. Dalgleish in 1866. In 1858 Mr. Ross shot the first male example ever observed in the far north, at Fort Resolution, Great Slave Lake, while the late Mr. Alexander Mackenzie obtained a female at the same place in 1861. We have never observed any live birds at Forts Anderson, Chipewyan, or elsewhere in the interior. On the shores of Franklin Bay, however, they breed in immense numbers. The nest is usually a shallow cavity in the ground, bountifully lined with eiderdown. The eggs are generally five, and but rarely six or seven in number, and they are of a pale sea-green colour, with a tinge of olive. Some nests were found on a sloping bank at a distance of three or four hundred feet from tidewater; but the bulk of the collection of eggs taken under personal observation in that quarter, as well as those received from the Eskimos

of Liverpool Bay, were found on sandy islets in the bays of Franklin and Liverpool. Over one thousand eggs of the Pacific eider, I believe first made known to science by our exertions, were shipped to Washington. The male bird is very wild and difficult of approach, especially after being once fired at. Female birds always appeared to us to be largely in excess of males in Franklin Bay. On one occasion there we discovered a nest from observing a white owl engaged in eating the eggs—four of which, however, had not been touched.

There is not a single skin or egg of the *S. V-nigra* in the National Museum at Ottawa!!

162. KING EIDER—*Somateria spectabilis* (Linn.).

This and the preceding *S. V-nigra* are the only two of the several species of American eiders entered in the afore-said American Ornithologists' Union Check List personally observed during a residence of nearly fifty-six years in the former licensed and chartered territories of the Hudson's Bay Company, and now known as the Provinces of Manitoba, Saskatchewan, and Alberta, and their respective hinterland. We have never met with specimens of *Somateria mollissima*, *S. borealis* or *S. dresseri*, and do not think that they breed on the polar shores of the Anderson or Mackenzie. As to the king eider, however, we found it tolerably abundant in Franklin Bay, where two hundred of its eggs were secured during the breeding seasons of 1862 to 1865, inclusive. The Eskimos of Liverpool Bay also contributed the contents of about twenty nests. These are similar to those of the Pacific eider, and when not interfered with the female bird usually lays from four to five eggs. They are generally of a light shade of olive gray, and some are of a grayish green in colour. The contents of nearly all those of both species were quite fresh, and when mixed with some flour they made excellent pancakes for our party finders. A few birds occasionally breed in close proximity to *S. V-nigra*,

and while the females annually observed by us greatly predominated in numbers, the males were exceedingly wary and kept well beyond gunfire. The Ottawa Museum contains but one skin, procured at York Factory, Hudson Bay, by Dr. Bell, and seven eggs taken in Hudson Strait and in Labrador, in 1885 and in 1897!

163. AMERICAN SCOTER—*Oidemia americana* (Swains. and Rich.).

Two males and one female of this species were procured by the late Mr. James Flett, the manager of Fort Resolution, Great Slave Lake, two of them from Fond du Lac, and the other was shot at the post in the spring of 1885, and the skins of both sets were duly forwarded to Dr. R. Bell. On the 28th May, 1891, Mr. Joseph Hourston, the clerk in charge of Lac du Brochêt post, at the north end of Reindeer Lake, Cumberland District, also shot a bird, and while this scoter is not particularly abundant in that region at any period of the season, it probably breeds in the country to the northward of that large body of fresh water. We have much reason, however, to assume that it bred annually in the Anderson River District, where it had been occasionally seen by the natives. On June 17th Mr. Dall found a nest at the mouth of the Yukon, in a bunch of willows on a small island, with two white and rather large eggs. Was well lined with grass, leaves, moss, and feathers. Ottawa Museum has two skins, but no eggs, of this duck!

165. WHITE-WINGED SCOTER—*Oidemia deglandi* (Bonap.).

A couple of skins of the velvet duck, received from Mr. Hourston, of Lac du Brochêt, Reindeer Lake, were forwarded to Dr. Bell in 1886. This species, in all probability, breeds in the northern section of Cumberland, as well as in the Districts of Athabasca, New Caledonia, and British Columbia. It also breeds in large numbers throughout the Arctic region, as several nests were found in the "Barrens," some

near the Fort, a few on the lower Anderson River, and in other parts of the forest sections,—these were always depressions in the ground, lined with down, feathers, and dry grasses, and placed contiguous to ponds or sheets of fresh water, frequently amid clumps of small spruce or dwarf willow, and fairly well concealed from view. The number of eggs found in a nest varied between five and eight. The eggs are large and of a deep, rich, buff colour. The Ottawa Museum does not possess a single egg, and but two skin specimens, of the velvet duck!

166. SURF SCOTER—*Oidemia perspicillata* (Linn.).

Dr. Bell, of Ottawa, was the recipient of an example killed at Lac du Brochêt in the spring of 1891. I again quote from the aforesaid paper: "The remarks made under *O. deglandi* happen to be in almost every respect equally applicable to the present species, the only noted difference being that generally less hay and feathers were observed in the composition of the nest, while only one of those found contained as many as eight eggs, the usual number being from five to seven. Both scoters were very abundant on the sea-coast, especially the last mentioned." The Ottawa Museum holds two skin specimens, but no eggs, under this heading!

167. RUDDY DUCK—*Erismatura jamaicensis* (Gmelin).

In previous Check Lists this duck was classified under *E. rubida*. A male specimen was secured at Fort St. James, Stuart's Lake, in the spring of 1889. Early in June, 1890, two male birds were shot near Cumberland House, Saskatchewan, and another the following season. I am not now quite sure that I ever observed it at Fort Chipewyan, or farther north, and yet future investigation may establish its presence in that remote northern region.

Both scoters, as well as the ruddy duck, are entered in Mr. B. R. Ross's Bird List.

Professor Macoun states that "this species lays a beautiful, and for the size of the duck, a large egg, and lays a great number, unless two or more lay in the same nest, which is probably the case." It was common in 1894 at Crane Lake. The nest was usually amongst "cat-tails" (*Typha latifolia*), whilst the scaup and red-heads preferred to breed among rushes. One nest was taken containing seventeen fresh eggs, fourteen of which belonged to the ruddy duck, two to the canvas-back, and one to the red-head. Bluish-green and creamy-white eggs in the same nest made quite a contrast. In the Ottawa-Museum there are but two skins, taken on the Toronto marsh by Mr. S. Herring, and eight eggs, secured at Crane Lake on 15th June, 1894!

169. LESSER SNOW GOOSE—*Chen hyperborea* (Pallas).

In the spring of 1889, from a large number of this species which passed north through New Caledonia, many birds were shot, and but one was forwarded, merely as an example skin, to Washington.

"White waveys" were formerly more abundant than, I believe, is the case of late years. This apparent diminution is probably a result of the constantly increasing settlement of territory along their annual migration journey from their wintering quarters in the Southern States of the American Union to their breeding-grounds at suitable points along the shores of the Polar Sea; but especially on the extensive islands lying to the north of the American Continent. Richardson says they breed in immense numbers in the Barren Grounds along the Arctic coast.

The Eskimos assured us that considerable numbers of "white waveys" annually bred on the shores and islands of Eskimo Lake and Liverpool Bay; but, strange to say, we never observed any on the Barren Grounds proper or on the shores of Franklin Bay. The Eskimos brought in to Fort Anderson about one hundred eggs, which they claimed to have discovered among the marshy flats and sandy islets

of Eskimo Lake. The Ottawa Museum has only one fine skin specimen, shot at Portage la Prairie, Manitoba, April 28th, 1897, and not a single egg!

169a. GREATER SNOW GOOSE—*Chen hyperborea nivalis*
Ridgway.

During our (1861-1866) residence at Fort Anderson we secured over one hundred eggs of both species, which had not at that time been definitely separated. They were all obtained from the Eskimos, who assured us that they had found them in nests placed among the marshy flats and on reedy sand islets on the sea-coast as well as on the low banks of the so-called Eskimo Lake, west of the lower Anderson River. Neither kind was ever observed by us on the Anderson Barren Grounds, although that accurate and distinguished scientist, Sir John Richardson, as quoted by Prof. John Macoun, recorded them as "breeding in immense numbers in the Barren Grounds along the Arctic coast." At Fort Chipewyan, where I resided from 1871 to 1885, both waveys were for a time annually very abundant, especially in the autumn, when great numbers were, as in the spring, shot for immediate food consumption, and many were also prepared for later use in course of the long winter, when they proved an agreeable change from the usual bill of fare. Mr. Ross says this is the *first* of the three white waveys to arrive at Fort Resolution.

There is but one specimen, shot at Black Island, Lake Winnipeg, by Mr. J. B. Tyrrell; also a set of three eggs, taken on one of the Twin Islands, James Bay, Hudson Bay, in 1898, received from Mr. A. P. Low, in the Ottawa Museum! This is surely the most southerly breeding point of a white wavy on record.

170. Ross's SNOW GOOSE—*Chen rossii* (Cassin).

An example skin of this small and interesting wavy was shot near Fort St. James, Stuart's Lake, summer 1889,

which was duly forwarded to Washington. Rare in northern British Columbia. In his valuable "Catalogue of Canadian Birds," Professor Macoun has made no reference to the following Anderson note: "A male bird of this species was shot at Fort Anderson on 25th May, 1865, where it is by far the least abundant of the genus during the spring migration. The Eskimo assured us that it did not breed in Liverpool Bay, and it may therefore do so, along with the great bulk of the two larger species, on the extensive islands lying to the north and north-east of the American continent." I have always regretted that I was unable, owing to the abandonment of the post, summer 1866, to carry out my intention of devoting at least two seasons to a personal exploration of the breeding-grounds of this and some other birds which are believed to resort to Liverpool Bay and the "Eskimo Lakes," and thence also to the delta of the Mackenzie River. At Fort Chipewyan, Athabasca, however, Ross's goose is the *last* to arrive in spring, but is among the first to return in the autumn. At Fort Resolution, Great Slave Lake, Mr. Ross states that it comes *second* there.

According to Cassin, this is the "horned wavey" described by Samuel Hearne, in 1795, as follows: "This species is very scarce at Churchill River, and I believe it is never found at any of the southern settlements; but about two or three hundred miles to the north-west of Churchill I have seen them in as large flocks as the common wavey or snow goose." Professor Macoun remarks that "nothing more was heard of this species until Mr. Robert Kennicott and Mr. Bernard R. Ross, of the Hudson's Bay Company, sent specimens taken on Great Slave Lake to the Smithsonian Institution, and Mr. Cassin recognized it as a new species, and named it after Mr. Ross." Mr. Fannin states that it has been taken at the Fraser River, and also on Shuswap Lake, and on Kuper Island, B. C., but he was inclined to think that its occurrence there was rare. The Ottawa Museum holds but one specimen (and no eggs), procured at Fort Churchill, Hudson Bay, by Dr. R. Bell!

171a. AMERICAN WHITE-FRONTED GOOSE—*Anser albifrons gambeli* (Hartl.).

This fine goose is fairly abundant some seasons at Fort Chipewyan, and quite a large number of them are shot in spring and autumn. At Fort Anderson a considerable number of eggs were collected in the early sixties of the last century. The *minimum* was four, and the *maximum* seven eggs in a nest, which was similarly built to that of other geese. An incidental experience may be quoted here: "On 5th July, 1864, on our way back from Franklin Bay, we observed thirty moulting ganders of this species on a small lake in the 'Barrens.' Our party of twenty divided, and by loud shouting and throwing stones at them they were compelled to land, where twenty-seven were run down and captured. Their flesh proved excellent eating,—it is seldom, indeed, that one comes across a gray wavey that is not in good condition in the far north." A clutch of four eggs in Mr. Raine's collection was taken on an island in Mackenzie Bay, west of the Mackenzie River, June 5th, 1895. The nest consisted of a hollow in the sand lined with down.

The breeding range of this goose is the whole of the north-western part of the American continent.

There is but one representative skin of this species, shot at the Red Deer River, Alberta, September 12th, 1896; by Mr. Dippie, in the Dominion Collection at Ottawa, and not a single egg is to be found there!

172. CANADA GOOSE—*Brenta canadensis* (Linn.).

A set of identified eggs from Fort Providence, Mackenzie River, was forwarded to Mr. Dalgleish, summer 1886. Another set of three eggs was sent to Washington. Rare in northern British Columbia, but tolerably numerous in Cumberland District. At Fort Chipewyan the Canada goose used to be very abundant annually in the spring and autumn, but it breeds throughout the entire wooded continent, from

the international boundary to the "Barren Grounds" east of the Rocky Mountains. No nests were, however, found in the "Barrens" proper, nor on the Arctic coast,—it usually lays on the ground, but we have known them to make use of several deserted hawks' nests on trees on their border. This goose is killed in great numbers for food by the natives and also for the use of the white men resident in the country. Dr. Richardson also states that they were formerly very abundant on the shores of Hudson Bay.

Professor Macoun has entered "this species as one of the earliest to arrive in the North-West. It was first seen in 1894 at Medicine Hat, on April 7th, by Mr. Spreadborough, and was common by the 16th. It seems to have no fixed place to breed, as it has been found nesting on old muskrat houses in marshes, on masses of dead reeds, in buzzards' nests, on low trees along streams, and in two instances it nested in trees at least forty feet from the ground. In one case the nest was that of a fish hawk, in the other an old nest of the bald eagle. Also breeding on rocks along Milk River, Alberta." The National Museum Collection at Ottawa contains one fine specimen, taken at Indian Head in May, 1894, and another purchased with the Holman Collection, and four eggs from Crane Lake, June 9th, 1894, and two taken on Whale River, Ungava Bay, Labrador, June 11th, 1896, by Mr. G. Boucher.

172a. HUTCHIN'S GOOSE—*Brenta canadensis hutchinsii*
(Rich.).

Fairly numerous at Fort Chipewyan, where quite a large number were annually shot in the spring and fall, but none were met with there during the summer season. At fort Anderson, however, as well as on the shores and islands of both Liverpool and Franklin bays, some fifty nests were found, including a few from the lower Anderson River. All but one were placed on the ground, and like that of the preceding species, it was a mere cavity lined with a small quan-

tity of hay, feathers and down, while six was about the usual number of eggs. The exceptional case was that of a female parent, shot while sitting on four ~~eggs~~ in a deserted crow or hawk's nest, built on the fork of a spruce tree, at a height of about nine feet above the ground. At the time the surrounding ground was still largely covered with snow and water, and this may have had something to do with the very unusual location of the nest. Sir John Richardson states that Hutchin's goose is met with around the shores and on the islands of the Arctic Sea, but seldom frequents the fresh waters of the interior during the summer months. All of the geese herein mentioned appear in Mr. Ross's List.

Mr. Dall says "they choose, in Alaska, the hill tops for their breeding-places. We secured eggs on June 15th. and the unfledged young July 10th. The nesting habits, notes and general mode of life of Hutchin's goose are identical with those of *B. canadensis minima* of the west, so they need not be specially referred to here." The eggs are smaller than those of the larger Canada goose and when first laid are fairly white, but by the time incubation sets in all are soiled and dingy. There are two skins, procured by Dr. Bell at Fort Churchill, Hudson Bay, and but one egg, obtained in Repulse Bay, north-west of Hudson Bay, in the Ottawa Museum!

172b. WHITE-CHEEKED GOOSE—*Brenta canadensis occidentalis* Baird.

I quote from the 1891 paper: "If no eggs were taken, it is almost certain that this large Canada goose is to be met with—occasionally, at least, if not annually—on the Anderson, as we had, methinks, more than one undoubted skin, or part thereof, brought in during our residence there. This is probably the new large goose entered as *Bernicla barnstonii* in Mr. Ross's List."

Mr. Dall states that during his residence on the coast of Behring Sea this bird was not seen, and as hundreds of the two other related species were examined both at St.

Michael and the Yukon mouth, it appears evident that it is found in Alaska as a straggler, or not at all. He, however, records specimens taken at Sitka. Mr. Brooks says it is much rarer than the Canada goose proper in the lower Fraser River valley. There is not a single specimen of bird or egg of this large Canadian goose in the National Museum at Ottawa!

174. BLACK BRANT—*Branta nigricans* (Lawrence).

Professor Macoun has somehow made no reference whatever to the following entry in the aforesaid paper: "This goose is exceedingly abundant on the Arctic coast of Liverpool Bay, but it is comparatively rare in Franklin Bay. Large numbers of eggs were obtained by the Eskimos in the first mentioned, but hardly any in the latter, locality. We never, however, observed any of these birds passing the post on their usual spring and autumn migrations. Six hundred and fifty eggs were packed up for shipment from Fort Anderson for the Smithsonian Institution." Mr. Ross thinks this may be Cassin's *B. nigricans* of the Pacific Fauna.

According to Mr. Murdoch, "the nest of this bird is placed in rather marshy ground, and is a simple depression lined with down, with which the eggs are completely covered when the parent leaves the nest. They sometimes begin to sit on four eggs and sometimes lay as many as six." The Ottawa Museum Collection holds but one pair, shot at Kadiak Island, Alaska, and no eggs!

180. WHISTLING SWAN—*Olor columbianus* (Ord).

For some time back swans seem to be annually dwindling in numbers. At Fort Anderson, however, twenty nests were secured and duly forwarded to the Smithsonian Institution at Washington.

The maximum number of eggs taken in the referred-to twenty nests of this swan which I find recorded was five, while the nests were always placed on the ground. Several

of them were also found on the sea-coast and on islands situated in Liverpool and Franklin bays of the Polar Ocean. Both Nelson and Turner speak of this bird being a common species in Alaska. Mr. Fannin says it is a common migrant in British Columbia. The young have also been taken on Vancouver Island. The Ottawa Museum contains one fine specimen, taken on Lake Winnipeg, by Mr. J. B. Tyrrell, and one egg also, supposed to belong to this species, from Mackenzie River!

181. TRUMPETER SWAN—*Olor buccinator* (Richardson).

A remark similar to the foregoing is applicable here, while I further quote from the Anderson paper: "Several nests of this species were met with in the Barren Grounds east of the Fort and on islands in Franklin Bay, and one containing six eggs was situated near the beach on a sloping knoll. It was composed of a quantity of hay, down and feathers intermixed, and this was the general mode of structure of the nests of both swans. It usually lays from four to six eggs, judging from the noted contents of a received total of twenty-four nests."

This species is said to be rare in Alaska, and uncommon in British Columbia. It occasionally breeds in Alberta, while Mr. Saunderson informed Mr. Raine that "wild swans used to breed on some of the lakes in the present Province of Saskatchewan before the Canadian Pacific Railway was built. The last nest he found was in the spring of 1885, during the last Riel Rebellion. It was at Sounding Lake, Assiniboia, and contained four fresh eggs." There are no eggs, but one fine skin specimen, of the trumpeter swan in the Dominion Museum, at Ottawa!

204. WHOOPING CRANE—*Grus americana* (Linn.).

Although we never succeeded in finding a nest of this crane, it undoubtedly breeds in the Fort Anderson section of Arctic America, as well as in the wooded country to

the south thereof, as a few small flocks have been annually observed flying past Forts Simpson and Good Hope, on the Mackenzie, and at Fort Anderson and other points also, in the spring and autumn of the year. Mr. Ross mentions that it extends to Fort Simpson and is rare in Mackenzie River.

Professor Macoun states that some thirty years ago this species was found in all the large marshes from Red River to the Rocky Mountains; but, with the building of the Canadian Pacific Railway and increased population, it is gradually retiring northward. A few still breed in eastern Saskatchewan. Richardson wrote, many years ago, that it frequented all parts of the North-West traversed by him. The Ottawa Museum holds a fine pair, presented by Mr. Thomas McKay, of Red Deer Hill, near Prince Albert, Saskatchewan, taken in the spring of 1893. One egg, obtained at Oak Lake, Manitoba, May 21st, 1893, is also in the collection.

205. LITTLE BROWN CRANE—*Grus canadensis* (Linn.).

In the spring of 1885 a bird of this species was shot near Fort Providence, and sent to Dr. Bell the following summer. A skin was also obtained by an Eskimo of the lower Anderson River in the autumn of 1863, and an egg was found in a nest at Franklin Bay in June, 1864. A second nest was discovered the following season on an island in Liverpool Bay, while the eggs (two each) and the parents of two other sets, received from the lower Anderson in the spring of 1866, were afterwards among those specimens referred to as having been destroyed by animals. The nest is usually a mere cavity in the sandy soil, thickly lined with fine dry grasses and a few feathers. Mr. Ross has entered them as common in his Mackenzie River Bird List. *Grus mexicana* may also prove to be a northern migrant.

Mr. Nelson says that "Lemmings, mice and berries constitute the food of this crane during the spring season. The spot usually selected for nesting has an unobstructed

view on all sides, and it is common to see the female's long neck raised suspiciously at the appearance in the distance of anything unusual." There is but one specimen (and no eggs), purchased with the Holman Collection, in the Canadian Museum at Ottawa!

214. SORA—*Porzana carolina* (Linn.).

A bird supposed to belong to this species was shot near Fort Providence, Mackenzie River, on 20th June, 1885, and it was afterwards forwarded to Dr. Bell. An individual was also procured at Pelican Narrows in course of the breeding season of 1890. Both Richardson and Ross state that it ranges as far north as the sixty-second degree of latitude.

Mr. Spreadborough states that it "nests in clumps of rushes and grass growing in water. Nest rather compact, consisting of grass placed from six inches to one foot above the water. Young leave the nest as soon as hatched. A nest taken at Deep Lake, Indian Head, contained three eggs and a young one just hatched, on 29th June, 1892. It was dark slate on the back, below rather lighter, a chin patch of bright orange, almost red, bill light horn colour, except the base, which was red." The Ottawa Museum contains three specimens, and a fine series of eggs taken at Crane Lake and Edmonton.

221. AMERICAN COOT—*Fulica americana* Gmelin.

On the 7th of June, 1880, a nest was found on the margin of a small pond of water near Fort Chipewyan, Athabasca. It was composed of a mass of dried grasses, down and feathers, placed in a depression in the ground, and it held six eggs. The parent was shot nearby, and Mr. Dalglish, who received the female and her eggs, identified the same as belonging to this coot. In the spring of 1890 two nests of the species were found,—one of them at Moose Lake and the other at Cumberland House. A male

and female parent skin also accompanied the thirteen eggs, which were forwarded and duly receipted at Washington. Mr. Ross says its northern limit is Fort Simpson, Mackenzie River.

Reported as common in British Columbia, but only one specimen is recorded by Nelson as taken in Alaska.

Professor Macoun, in course of an hour's wading in a marsh at Crane Lake, discovered eighteen nests of this coot, nearly all of which contained eleven eggs. From ten to twelve was the usual number. The young hatch out very irregularly, and as fast as they come from the shell they leave the nest and take to the water. The nests were all made of the dead *Scirpus* and lined with the broad leaves of the *Carex*. The Dominion Museum collection contains one skin, taken in a Toronto marsh, and two others taken at Kamloops, B. C., by Mr. W. Spreadborough. Also a set of twelve eggs, and one of six eggs of the coot, and two of the lesser scaup, all taken by Mr. Dippie, in 1896, and presented by him to the Museum.

225. AMERICAN AVOCET—*Recurvirostra americana* (Linn.).

This species evidently breeds in the Cumberland District, as example bird-skins were obtained at Moose Lake and the Pas posts, and they were duly forwarded to Washington. The late Chief Factor L. Clarke took a nest of eggs at Fort Rae, Great Slave Lake, about 1861.

Mr. Spreadborough says that "the nest, in nearly every case, was a shallow depression in the sand between three or four stones, and was lined with a few pieces of grass. The chief nesting places are on the borders of alkali ponds, and the nest is always near the water. Breeding generally commences the last week in May, and the young leave the nest as soon as hatched." The National Museum at Ottawa contains eight fine specimens, all taken at Indian Head in the spring of 1892 by Mr. W. Spreadborough. Also many eggs from Crane Lake taken by that gentleman, and one set

taken by Mr. J. B. Tyrrell at Sounding Lake, Alberta, in June, 1886.

230. WILSON'S SNIPE—*Gallinago delicata* (Ord).

There can be no doubt that this snipe breeds on the lower Saskatchewan River, as well as at Pelican Narrows and in the region beyond. An example skin was received and thereafter shipped from Cumberland District in the summer of 1891. We did not—some forty years ago—find it particularly numerous in the Anderson River country, where only a few nests were found. The nests of all the snipes and sandpipers observed there were much alike in situation, composition and number of eggs. The Anderson collections were made after Mr. B. R. Ross's resignation from the charge of the Mackenzie River District in 1862.

This snipe is widely distributed throughout Western Canada and Alaska. Mr. Macoun mentions that early in 1890 he found a nest beside a log in a small bog close to the Canadian Pacific water-tank at Revelstoke, B.C. The nest was close to the water, and anyone walking along the line could see the bird, but she hatched out her young and led them off in safety. The Ottawa Museum holds but four specimens and a few eggs!—one from Rev. C. J. Young, and the others were received from Mr. Raine.

232. LONG-BILLED DOWITCHER—*Macrorhampus scolopaceus* (Say).

Early in June, 1891, an individual specimen was secured at Pelican Narrows, where stragglers of the species probably breed. In the Anderson River region, however, where it is not abundant, several nests, each holding four eggs, were taken between the 21st of June and the first day of July in the earlier sixties of the last century. *M. griseus* (Gmelin) is also supposed to be a resident there during the annual season of nidification. Both species are entered in Mr. Ross's List as "rare" on the Mackenzie.

Mr. Nelson states that "this species arrives quite early at the Yukon, often by the 10th of May. Towards the end of the month it is plentiful and is beginning to breed."

There are seven specimens, but no eggs, in the Ottawa Museum! They were taken at Indian Head and Banff by Mr. W. Spreadborough.

233. STILT SANDPIPER—*Micropalama himantopus* (Bonap.).

About forty years ago this species was fairly abundant along the shores of Franklin Bay, where a number of nests with eggs and young birds were discovered. It appeared, however, to be very rare in the interior, only one single nest having been taken by us at Rendezvous Lake, on the border of the rather sparsely wooded country lying to the eastward of Fort Anderson. On one occasion we could not help admiring the courage and ingenuity displayed by both parents in protecting their young, which, for scientific purposes, we endeavoured to secure, and which, on that particular occasion, enabled them to save two of the latter from capture. Mr. Ross obtained skins and eggs at Fort Simpson about 1861. Reports it as "very rare."

It seems to be rare in Manitoba, as Mr. Thompson Seton records only one positive capture; but Mr. Spreadborough found it common at Indian Head in September, 1891. Apparently absent in British Columbia and Alaska. The Ottawa Museum Collection contains six skin specimens, but no eggs!

235. PURPLE SANDPIPER—*Arquatella maritima* Brunn.

I do not remember having ever met an example of this species on the Anderson, or indeed anywhere else in North-Western Canada. Sir John Richardson many years ago stated that it bred extensively on Melville Island and on the shores of Hudson Bay. Not entered in Mr. Ross's List, nor does it figure in Professor Macoun's Catalogue of Birds in the Ottawa Museum!

241. BAIRD'S SANDPIPER—*Actodromas bairdii* (Coues).

On the 26th of May, 1885, Mr. John Reid shot a female bird near Fort Providence, which was forwarded to Dr. R. Bell. Not abundant in the Anderson River region, where we, however, discovered several nests in the Barren Grounds and at other points thereof. It may be mentioned that sandpipers' nests seldom vary in position and number of eggs. Absent from Mr. Ross's List of Birds observed by him in the Mackenzie River District.

One of the nests in question, taken on the 24th of June, 1864, in the Barren Grounds, in a swampy or marshy tract between two small lakes, was composed of a few decayed leaves placed in a small cavity or depression in the ground, shaded by a tuft of grass. The female bird glided away from the nest on being approached, passing closely by me, and then fluttered along, drooping her wings as if wounded, endeavouring thus to lead me away therefrom. It is very uncommon in any northern section traversed by us.

The Ottawa Museum contains nine specimens, but no eggs, of this interesting sandpiper!

246. SEMIPALMATED SANDPIPER—*Ereunetes pusillus* (Linn.).

In the early sixties of the nineteenth century we found this sandpiper fairly abundant in the Barren Grounds, but more so on the coast shores of Franklin Bay, where a number of birds with eggs were secured. We had sometimes occasion to admire the interesting manner, regardless of the danger to herself, in which the mother endeavoured to draw away intruders from the vicinity of her nest. She would glide away in an apparently disabled condition, and so continue for some distance. The nests are occasionally hidden by tufts of grass, while an experience of the 30th June, 1865, is worthy of quoting herein: "In reference to one nest,

found between two small brackish lakes near the sea-shore, it may be stated that one of our party, a French-Canadian from Quebec, heard the female parent utter a shrill note of alarm as she flew away when he approached her nest. After searching around for several minutes, he failed to find the eggs, and he then hid himself in order to watch where she would alight on her return. In a short time she came back, accompanied by three companions, all of whom flew and moved about, but not discovering anything, they seemed to hold a brief consultation, after which they separated, the female going to her nest. Another search on his part failed to locate same, while she cleared off and soon returned with her three friends, who appeared to be in a state of great excitement, judging from their angry chattering. After a little while they again separated, when the nest was found and the parent shot for identification of itself and her four eggs. The report of the gun brought the others once more to the spot, but they at once beat a hasty retreat." This nest was particularly well protected from ordinary observation. Mr. Ross found this sandpiper rare at Fort Simpson.

Mr. Hutchins, writing in 1770, says: "This species arrives at Severn River (about one hundred and fifty miles south-east of York Factory, Hudson Bay) by the middle of May in large flocks, builds a nest early in June of withered grass, and lays four or five black and white spotted eggs. Towards the autumn it has a chirping note, and in September it retires to the southward." There are nine specimens, but no eggs, in the National Museum Collection at Ottawa!

248. SANDERLING—*Calidris arenaria* (Linn.).

Early in June, 1891, a specimen of this somewhat rare and interesting bird was shot by Mr. Henry McKay near Pelican Narrows, Cumberland District. "On the 29th of June, 1864, we discovered a nest of this species in the Barren Grounds east of Fort Anderson. It contained four

eggs, which we afterwards learnt were the first and only authenticated examples at that time known to American naturalists. The nest was composed of withered grasses and leaves placed in a small cavity or depression in the ground. The contents of the eggs were quite fresh, and they measured 1.44 inches by 0.95 to 0.99 in breadth, and their ground colour was a brownish olive marked with faint spots and blotches of bistre. These markings were very generally diffused, but were a little more numerous about the larger ends. They were of an oblong pyriform shape. The parent bird was snared on the nest. It is a very rare bird in the Anderson River country, and we failed to find another nest thereof." Entered as rare in Mr. Ross's MacKenzie River List.

There are four specimens in the Ottawa Museum,—one taken in Toronto by Mr. S. Herring, two at Indian Head in May, 1892, and the fourth at Thirty-mile Spring, near Wood Mountain, June 3rd, 1895, by Mr. W. Spreadborough, but eggs are entirely absent!

249. MARBLED GODWIT—*Limosa fedoa* (Linn.).

Under numbers 41 and 43 of the Smithsonian List of Specimens received from Cumberland District, season 1890, appear two example skins of this godwit, collected, one at Moose Lake and the other at Pelican Narrows, early in the month of June; but we were not so fortunate as to secure any of its eggs. We never met this bird on the Anderson, nor does it appear in Mr. Ross's referred-to List.

Professor Macoun says: "We have never succeeded in finding the eggs of this species, but it breeds abundantly in the prairie region between latitudes 51° and 52° north." The Ottawa Museum contains one specimen, purchased with the Holman Collection, and five taken by Mr. Spreadborough at Indian Head, 1892, and Medicine Hat in 1894. No eggs!

251. HUDSONIAN GODWIT—*Limosa hæmastica* (Linn.).

In the above-mentioned Cumberland Collection of 1890, a male godwit figures under No. 53, which was shot by Mr. Edward Haight, at that time in charge of the Company's post at Pas Mountain, Cumberland. Not very common in Arctic America, where several nests were found near the Fort and on the lower Anderson River. They were all mere depressions or small holes scooped out in the soil, lined with decayed leaves, and in almost every instance the set number of eggs was four. A description of these somewhat rare specimens may not prove out of place in this work:

"Three of the eggs received from the Anderson are now in the Smithsonian Collection. In two of these the ground is of a deep raw umber colour or an olivaceous drab. There are no well defined spots, but the apex of the larger end is deeply stained with a dark burnt umber colour. A few very indistinct spots of a paler shade of this tint are visible over the general surface of the eggs. The other egg has a ground colour of a paler umber drab, and the markings are quite distinct. These are small, irregular blotches, longitudinal in their direction, and of a deep burnt umber tint. The apex of the larger end is covered by a broad patch in which all the markings are of a very dark umber, almost black, and run into each other." The Canadian Museum at Ottawa holds one specimen, taken on Toronto Island in 1865, purchased with the Holman Collection, and two taken by Mr. W. Spreadborough at Indian Head in May, 1892, but no eggs!

254. GREATER YELLOW-LEGS—*Totanus melanoleucus*
(Gmelin).

At Fort St. James, Stuart's Lake, on the 31st of May, 1889, an Indian brought in the female parent and six eggs, which he stoutly asserted having found in the nest, a mere depression in the ground, situated on the margin of a small lakelet and lined with a few withered grasses and leaves. The bird was shot in its immediate vicinity. Unfortunately

the eggs were almost ready to hatch, so that but two of them were emptied, and the others were put in alcohol for transmission to Washington. A week earlier another Indian found a nest containing four eggs similarly incubated, and a third hunter observed as many (four) nearly hatched young in another nest. This species is not rare in this locality. Mr. Ross obtained skins as far north as Fort Simpson, where he found it somewhat rare. I have, however, observed it much farther north.

The Ottawa Museum contains eight specimens, one taken in Toronto, purchased with the Holman Collection, and the others from Ottawa, Indian Head, and one taken at Victoria, Vancouver Island, in March, 1890. Eggs are absent!

263. SPOTTED SANDPIPER—*Actitis macularia* (Linn.).

Two sets of eggs with the parents, obtained at Forts Rae and Resolution during the breeding season of 1881, were duly forwarded to Mr. Dalgleish. At Pelican Narrows, Cumberland District, early in June, 1890, Mr. Henry McKay discovered a nest of this species, composed of some dry grasses placed in a small cavity on the shore of a small lake. It held four eggs. A few days later Indian hunters brought him the contents of three nests. He states that they held from three to four eggs, and that by the autumn the birds become so very fat that they are often run down and caught by hand. This sandpiper is present throughout the district of New Caledonia, B.C., while we collected but one example. Not being *desiderata*, comparatively few eggs were collected by us at Fort Anderson, although the birds are fairly numerous on the Lockhart and Anderson rivers, and at many other points in Athabasca and Mackenzie River districts. We did not see any, however, on the Polar sea-coast. Common at Fort Simpson.

There are ten specimens of the bird and three sets of eggs in the National Museum at Ottawa. One of the latter was taken in Labrador, one set from Repulse Bay, Hudson

Bay, and the third was secured by the Professor (Macoun) himself at Cypress Lake, Saskatchewan, on June 29th, 1895.

270. BLACK-BELLIED PLOVER—*Squatarola squatarola*
(Linn.).

The only locality where we met with this species was at Franklin Bay, where, on July 4th, 1864, two sets of well-identified eggs were found. In the same month of 1865, and not far from the same place, seven nests were gathered. Each nest contained four eggs and was composed of a small quantity of withered grasses placed in a cavity or depression in the ground, generally on the side or face of a very gentle eminence. Both parents were usually around, and we believe that they relieve each other during the process of incubation. We also, at first, mistook them for golden plover (*Charadrius dominicus*), which they so much resemble, but their note and a comparison of skins soon undeceived us. I omitted to mention that a snare was placed over a third nest found in 1864, but unfortunately while we slept a snowy owl (*Nyctea nyctea*) devoured the captured female, together with her four eggs. We never received a single skin or egg of this species, but quite a number of both of the golden plover, from the Eskimos of the lower Anderson, or from the shores of Liverpool Bay. In his frequently referred-to List, Mr. Ross says: "North to Fort Simpson, rare." The Ottawa Museum has three specimens, one purchased with the Holman Collection, another taken on Toronto Island by Mr. S. Herring, and a third at Edmonton, Alberta, in May, 1897, by Mr. W. Spreadborough.

272. AMERICAN GOLDEN PLOVER—*Charadrius dominicus*
Müll.

In May, 1885, Mr. John Reid, of Fort Providence, procured two skins of this plover, which were forwarded to Dr. R. Bell. A third example was obtained from Pelican Narrows in 1891, where it is only a spring and autumn migrant. In the Anderson River region, however, it is abundant, not

only in the Barren Grounds but also on the border of the woods and along the shores of the Polar Ocean. Altogether one hundred and seventy nests are recorded among my notes. The female lays four eggs,—in one instance we found five, and in another only one, while the contents of these happened to be in a well-developed condition. During the breeding season foxes destroy many eggs and young of this and other species of birds nesting on the ground. While traversing the Barrens and on the coast the frequently varying and sweetly clear and melodious notes of both plovers and curlews were almost constantly heard by us with no little pleasure. Mr. Ross's List entry is "North to Arctic coast and abundant." Sir John Richardson says it hatches early in June and retires southward in August.

The nests are precisely similar to those of the black-bellied plover. They were also as difficult to discover, and for the same reason, a harmonizing resemblance of the egg-markings to the surrounding soil, and a timeous departure of the female bird from her nest. On one occasion our party spent half an hour in a close but fruitless search, during which the female resorted to various manœuvres to attract us away from her nest, but on our withdrawal to a short distance she at last revealed its position by settling down upon her eggs.

The Dominion Museum contains eight fine specimens of this plover, but no eggs!

273. KILLDEER—*Oxyechus vociferus* (Linn.).

In the spring of 1891, Mr. McKay, of Pelican Narrows, Cumberland, shot a specimen which was later identified as being that of a killdeer. I cannot say that I ever met there-with on the Anderson River or elsewhere. It may, however, be present in summer in British Columbia, as well as in sections north of the Saskatchewan River. Mr. Spreadborough states that "this species nests in the gravel at the margin of lakes and ponds, also on bare ground on the prairie and in ploughed fields throughout the whole prairie

region. The nest is a hole in the gravel or ground, usually not far from water. Eggs, four, always standing upon the small end in the nest." This is an interesting peculiarity never observed by me in the nest of any bird found, nor has any one ever, to my knowledge, called attention thereto. The Ottawa Museum holds eight specimens and several sets of eggs, taken at Indian Head, Saskatchewan, and Edmonton, Alberta, in 1892 and 1897.

274. SEMIPALMATED PLOVER—*Ægialitis semipalmata*
(Bonap.).

A nest containing four eggs believed to belong to a plover of this species was found at Fort Rae, Great Slave Lake, in the spring of 1880, and in due time it was forwarded to Mr. Dalgleish. We found this bird quite common along the Lockhart and Anderson rivers, on the shores of Liverpool and Franklin bays, and in the country between Forts Anderson and Good Hope, many years ago. Twenty nests were found, and their contents were shipped to the Smithsonian Institution at Washington. When the nest was closely approached, the female usually glided therefrom and ran a short distance before flying, occasionally drooping the wings and pretending lameness. The nest is a mere cavity in the sand lined with a few withered leaves.

Professor Macoun states that "this bird makes its summer home and brings forth its young from Ungava Bay, on the north-east coast of Labrador, to Norton Sound, in Alaska. It is, however, more plentiful east of the Mackenzie River than west of it. It is known only as a rare migrant in British Columbia, and not known to breed." There are two specimens, both taken at Indian Head by Mr. W. Spreadborough, and four eggs taken in Labrador by Mr. A. P. Low, and eight by Mr. Payne in Hudson Strait, in the spring of 1885, and others taken at Whale River, Hudson Bay, in the Ottawa Museum.

283. TURNSTONE—*Arenaria interpres* (Linn.).

Mr. James Flett, of Fort Resolution, obtained a skin on 18th June, 1880, which was forwarded to Mr. Dalgleish. Abundant at Fort Anderson, and on the Arctic coast of Canada. Although no examples were secured at Chipewyan, Stuart's Lake, and Cumberland, there is reason to believe that it breeds at all of these points. We never met with any of the species in the "Barrens" east of Fort Anderson. Four was the maximum number of eggs in the several nests secured by us in that quarter of Arctic America, while their construction was similar to that of other waders. Common throughout the district of Mackenzie River.

The Ottawa Museum contains four specimens, but no eggs, of this abundant species!

LAND BIRDS

297b. RICHARDSON'S GROUSE—*Dendragapus obscurus richardsonii* (Doyl.).

On the 20th of March, 1885, an example was shot at Fort Providence and afterwards sent to Dr. Bell. There can be little doubt that the species breeds there and at other points in Mackenzie River, Athabasca, and Cumberland, although we failed to secure any of their eggs there or at Fort Anderson. In 1863 Chief Trader James Lockhart obtained at Fort Liard, west of Fort Simpson, the most northern specimens thereof that were at that time (1895) in the United States National Museum collection at Washington.

According to Major Bendire "their nesting habits, as far as known, as well as their eggs, are similar in every respect to those of the dusky or sooty grouse." There are six eggs, taken at Revelstoke, B.C., May 2nd, 1890, by Professor Macoun, and three bird specimens from Alberta and British Columbia, in the Ottawa Museum.

298. CANADA GROUSE—*Canachites canadensis* (Linn.).

This grouse breeds at Fort Providence, where a male and female thereof were shot. The former was forwarded to Mr. Dalgleish, and the latter to Dr. Bell, in the summer of 1886. Early in June, 1891, a set of five identified eggs was obtained at, and sent from, Cumberland House to Washington. Common in the forest country at and north of Fort Good Hope, Mackenzie River, where they no doubt breed, as well as in New Caledonia district, British Columbia. In the beginning of the sixties of the last century, Chief Trader B. R. Ross, who found the species abundant at Fort Simpson, procured some eggs thereof, which are now, according to Major Bendire, in the U. S. National Museum. They were taken as early as 23rd May. The number of eggs to a set varies from nine to thirteen, rarely more, usually about eleven, and in exceptional cases as many as sixteen. An egg is deposited every other day, and incubation does not begin till the clutch is completed. In the Dominion National Museum collection there are three specimens and but one set of eggs, taken in Labrador by Mr. A. P. Low, June 1st, 1894!

299. FRANKLIN'S GROUSE—*Canachites franklinii*
(Douglas).

In his "Life Histories of North American Birds," the late Major Bendire states: "Among an extremely interesting collection of birds' nests and eggs made by Mr. R. MacFarlane, Chief Factor, Hudson's Bay Company, near Stuart's Lake, B.C., during the season of 1889, and throwing much light on the distribution of a number of species found in this little known and practically unexplored territory, are two incomplete sets of eggs of this bird. Three eggs of Franklin's grouse and one egg of the Canadian ruffed grouse were found in one nest by an Indian near Lake Babine post, in the latter part of May, 1889, and a second nest, also containing three eggs, was brought to Mr. Mac-

Farlane with the parent by another Indian, who found it near Fort St. James on 9th June of the same year. The nest was merely a slight depression in the ground, and was lined with a few decayed leaves. Two of the eggs contained well-formed embryos and the third was addled. Through the kindness of Mr. William E. Traill, Chief Trader, his successor in the charge of New Caledonia District, parts of three sets of these eggs, fifteen in number, were collected during the season of 1890, taken on May 20th, 27th, and 30th, respectively. The eggs were fresh when found. They resemble those of the Canada grouse in shape, colour, and markings, but are a trifle smaller. Franklin's grouse is a constant resident wherever found, and abundant enough in certain localities." I have no recollection of having ever seen this grouse in the districts of Mackenzie River, Athabasca, and Cumberland. There are but two skins, and no eggs of this grouse, in the Ottawa Museum!

300a. CANADIAN RUFFED GROUSE—*Bonasa umbellus togata* (Linn.).

A supposed example was shot at Fort Resolution on the 1st of April, 1885, and it was later forwarded to Dr. Bell. On page 67 of the aforesaid Bendire's "Life Histories" he writes: "A nest of this grouse was found by Mr. R. MacFarlane near Fort St. James, B.C., on the 16th of May, 1889. It contained eight nearly fresh eggs and was placed close to the foot of a pine tree, in a slight depression scratched out by the bird. It was sparingly lined with grass, dry leaves, and a few feathers, and situated near a small lake. Judging from the number of skins of this grouse sent on at the same time, it must be quite common there. But one brood of grouse is raised in a season. Incubation lasts from twenty-four to twenty-eight days, and does not really begin until the clutch is completed, an egg probably being deposited daily. The number of eggs to a set varies from eight to fourteen, rarely more. In form and size the eggs

are indistinguishable from those of the former sub-species. In size they average a trifle larger."

They have been met with as far north as Fort Simpson, where Mr. Ross secured both skins and eggs. There are but three bird skins and two sets of eggs in the Ottawa Museum!

300b. GRAY RUFFED GROUSE—*Bonasa umbellus umbelloides* (Dougl.).

Chief Trader Bernard R. Ross states that it is common at Fort Simpson and on the Mackenzie River, north to La Pierre's House, west of Fort McPherson, Peel's River. He also claims having secured its eggs in that district over forty years ago. Not observed by us on the Anderson.

The Ottawa Museum contains three fine bird specimens from Mr. W. Spreadborough, and but one set of six eggs, taken by Professor Macoun at Revelstoke, B.C., on May 18th, 1890!

300c. OREGON RUFFED GROUSE—*Bonasa umbellus sabinei* (Dougl.).

This grouse is a resident and breeds throughout the district of New Caledonia. According to receipt lists sent us from the Smithsonian Institution at Washington, several skins of parents with complete sets of eggs were obtained from that northern section of British Columbia in the autumn of 1889. So far as known to me, this sub-species has not been observed to the eastward of the Rocky Mountains. Major Bendire states that "this darkest and handsomest of the race *Bonasa* is restricted to the wooded portions of the country between the western slopes of the coast range and the Pacific Ocean, as well as the islands adjacent thereto. It is also found at Sitka, Alaska, Western Oregon, and North-western California. Like the preceding, it is a constant resident and breeds wherever found, its general habits differing in no particular from those of its allies. Nidification begins in April and lasts sometimes till late in

June. The number of eggs to a set varies from seven to thirteen, rarely more." A small set of six, partly incubated, was collected by him near North Saanich, Vancouver Island, B.C., June 28th, 1876 (probably a second laying, the first brood having been destroyed). The nest, a slight hollow in the ground scratched out by the bird, was placed under the fallen branches of a spruce tree. The cavity was lined with dead leaves and spruce needles, as well as a few feathers. This nest was found close to a small creek and was well concealed.

The Ottawa National Museum does not possess a single skin or egg of this, one of the most abundant birds of the coast region of British Columbia, including all the islands in the Gulf of Georgia, Vancouver Island, and Queen Charlotte Islands!

301. WILLOW PTARMIGAN—*Lagopus lagopus* (Linn.).

On the 3rd of April, 1885, an Indian shot two birds at Fond du Lac, Great Slave Lake, and early in the following June another "yellow knife" hunter found two nests, each containing four fresh eggs, at a considerable distance north north-east of the Company's post there. They were mere cavities in the ground lined with some withered leaves. The parents were seen and clearly identified as willow ptarmigan. Mr. Dalgleish became the happy possessor of the eggs, together with the above skins and a female example shot near Fort Providence, Mackenzie River. Dr. Bell also received the same season three ptarmigans procured at Fort Resolution. During the winter season this species is more or less abundant throughout the Provinces of Manitoba, Saskatchewan, and Alberta, the district of Keewatin, and the North-West Territories of Canada. In the spring of 1890 several skins were obtained at Babine post, New Caledonia.

There are very few special or other reference omissions in Professor John Macoun's carefully prepared and recently completed "Catalogue of Canadian Birds," but under this

heading he has somehow not mentioned the Anderson collection of the eggs of *Lagopus*, although it was without doubt the largest ever made by, and under the auspices of, any individual collector in North America. It may prove of interest to reproduce here the notes made thereanent in the aforesaid paper: "This species is exceedingly abundant in the neighbourhood of Fort Anderson, on the lower Anderson River, and in the sparsely wooded country to the eastward. It is not, however, common in the Barren Grounds, especially from the Wilmot Horton River to Franklin Bay, where it is replaced by *Lagopus rupestris*. The nest is invariably on the ground, and consists of a few withered leaves placed in a shallow cavity or depression. The female sometimes only leaves it when almost trodden under foot. In fact, several were swooped upon and caught thereon by hand. They usually begin to lay about the end of May or beginning of June. The process of moulting, or the assumption of their summer plumage, commences a week or two earlier. The female lays from seven to ten, twelve, and occasionally as many as thirteen eggs, which I find was the greatest number recorded, and we had reason to know that some at least of the nests were used by ptarmigan for several seasons in succession. When very closely approached, as stated, the female would frequently flutter off, sometimes spreading her wings and ruffling her feathers as if to attack or frighten away intruders, and at others calling out in distressed tones and acting as if she had been severely wounded. In one instance, where an Indian collector had found a nest which then contained seven eggs, he placed a snare thereon; but on returning to the spot a few hours afterwards, he was surprised to find that six of the eggs had disappeared in the interim, and as no egg-shells (the male flew away) were left behind, they were in all probability removed by the parents to a safer position. The male bird is generally not far away from the nest, and his peculiarly hoarse and prolonged note is very often heard, the more especially between the hours

of ten p.m. and two a.m. Both parents, however, display great courage and devotion in protecting their young (which we frequently encountered on our annual return trips from the Arctic coast) from capture. In course of our five (1862 to 1866) exploring seasons nearly five hundred nests and considerably over three thousand eggs of this species were secured in the Anderson River region. Towards the end of September, during October and early in November, annually, *L. lagopus* assemble in large flocks; but during the winter it was seldom that more than two or three dozen were ever noticed in single companies. They are, however, most winters very numerous in the neighbourhood of Fort Good Hope and other Hudson's Bay Company's posts in the Mackenzie River district, but as the spring comes on they begin to migrate northwards. It is very doubtful if many breed to the south of latitude 68° north, at least in the valley of the Anderson. In the country to the north and east of the Athabasca and Great Slave lakes, however, some may breed considerably south of that latitude. The flesh of the ptarmigan is by no means as good eating by itself as that of a grouse or prairie chicken."

Major Bendire states that: "The average number of eggs to a set is from seven to eleven, and but one brood is raised in a season. The eggs vary in shape from ovate to elongate ovate. The ground colour ranges from cream colour to a pronounced reddish buff, with several intermediate shades. In some specimens it is very clearly seen, in others it is almost completely obscured by the heavy confluent blotches and markings. The latter vary from well-defined and nearly even-sized spots of different sizes to confluent and clouded blotches, and smears of various shades of dark reddish and clove brown, completely obscuring the ground colour in some instances. All this colouring matter can be readily removed in a freshly-laid egg, or in one taken from the oviduct of a dead bird, just ready for expulsion, leaving the shell a pale, creamy white, and they show an almost endless

variation in shape, colour, and size. All the specimens in the U. S. National Museum collection were taken in the month of June, the majority about the middle of the month. The food of the willow ptarmigan during the early spring and summer consists principally of the buds and tender leaves of the various species of birch and willows found in that region, and of arbutus, cranberry and other berries, together with insects, etc."

There are five skins, four of which were secured by Dr. R. Bell at Fort George, James Bay, Hudson Bay, and the fifth at Fort Chimo, Ungava, Labrador, by Mr. A. P. Low, in the Ottawa Museum. Also four sets of eggs, ranging from four to eleven, all taken in Labrador by Mr. Low in 1894 and 1896.

302. ROCK PTARMIGAN—*Lagopus rupestris* (Gmelin).

In 1885 a bird of this species was procured at Fond du Lac, Great Slave Lake, and two also from Fort Resolution, all of which were duly forwarded to Dr. Bell. It was not observed by us in New Caledonia, nor in Cumberland, although it is doubtless present in the country lying to the northward of Reindeer Lake. I again beg to quote from our Anderson experiences: "This ptarmigan is not nearly so plentiful as *L. lagopus*, and we only met with it in any considerable number from the Wilmot Horton River, Barren Grounds, to the shores of Franklin Bay. Very few nests were found to the westward of that river, or on the coast or the 'barrens' of the lower Anderson. Its nest is similar, but it lays fewer eggs than *L. lagopus*, as nine proved to be the rarely attained maximum among an aggregate record of sixty-five nests—the usual number was six and seven, and there were some which held only four and five eggs. Several of these would doubtless have contained more had they been discovered at a later date. It proved no easy matter, however, to find the nests of this species, as the plumage of the birds and the colour of the eggs both strongly resembled the

neighbouring vegetation. At the same time the female sat so very closely that more than one was caught on the nest, and I recollect an instance where the parent, on the very near approach of our party, must have crouched as much as possible in the hope that she might not be noticed, which would have happened had not one of the smartest of our Indian assistants caught a glance of her eye. Although many male 'Rockers' were observed on our summer trips, feeding and otherwise disporting themselves in the 'Barrens,' yet comparatively few nests were obtained, and except in 1862 not one well-identified example was discovered by us west of Horton River, but during the winter scores of *L. rupestris* were met with in the forest country east of Fort Anderson." Like *L. lagopus*, it raises but one brood annually.

Major Bendire writes that "We are indebted to Mr. R. MacFarlane for nearly all we know about the breeding habits, nests and eggs of this interesting species." . . . The Appendix description of the Anderson Barren Grounds will give the reader a good idea of the summer home of the rock ptarmigan, and while its food differs probably but slightly from that of the willow ptarmigan, it must necessarily be restricted to a much smaller variety. . . . "The U. S. National Museum is almost entirely indebted to the indefatigable Mr. R. MacFarlane for the handsome series of eggs of this species in the collection, all of which (in 1895), with the exception of a single set, were obtained by him."

"Nidification begins about the middle of May in Alaska, and correspondingly later in the Barren Grounds, usually from June 15 to July 10. The eggs are ovate or short ovate in form, resembling the eggs of *Lagopus lagopus* considerably, both in colour and markings, but they average smaller. The majority are readily distinguished from those of the latter, the markings, as a rule, being smaller and better defined, and seldom running into indistinct and irregular

blotches, as is frequently the case in the eggs of that species. The ground colour ranges from a pale cream to a decided yellowish-buff, and in many specimens this is entirely hidden by a vinaceous rufous suffusion. The spots and blotches range from a dark clove-brown to a dark claret-red, with paler coloured edgings; they are of various sizes, from the size of a buckshot to that of No. 10 shot, and are irregularly distributed over the egg. The average measurement of the ninety-nine specimens now in the U. S. National Museum collection is 42 by 30 millimetres. The largest egg in this series measures 44 by 32.5; the smallest 39 by 29 millimetres. No. 14,997 (plate 2, figure 15) is from a set of ten eggs, taken in the Gens-du-large or Romanzof Mountains, Alaska, by Chief Factor James McDougall, of the Hudson's Bay Company, in the latter part of May, 1869." Both Sir John Richardson and Mr. B. R. Ross state that the white-tailed ptarmigan, *Lagopus leucurus*, is a resident of the northern Rocky Mountains to La Pierre's House. Its breeding range is only found on or near the summit of the higher mountains, and apparently always above the timber line. It is always a resident wherever it is met with. Their nests are a slight hollow in the ground lined with a few small twigs, grasses, leaves and feathers, and, on the whole, a much warmer and more compact affair than that used by *L. lagopus* and *L. rupestris*. In number the eggs vary between four and ten.

The Ottawa Museum collection contains nine fine skin specimens in both winter and summer plumage, but no eggs!

308. SHARP-TAILED GROUSE—*Pediocætes phasianellus* (Linn.).

On the 16th of May, 1880, Mr. John Reid found a nest composed of leaves and grasses in a shallow depression in the ground near Fort Providence. It contained nine fresh eggs, and the parent bird was shot in the vicinity. They were later forwarded to Mr. Dalgleish, while a male example killed

there about the same time was sent to Dr. Bell. This grouse also breeds in the valley of the Lockhart and Anderson rivers, where a couple of nests were found, but the eggs were afterwards lost. They are highly esteemed for their flesh, which is certainly superior in quality to that of the ptarmigan or ruffed grouse. A quotation or so from Bendire's splendid "Bird Life Histories" will be read with interest:

"Mr. (now Chief Trader) C. P. Gaudet, of the Hudson's Bay Company, found it breeding at Fort Good Hope, in the Mackenzie River Basin, and it probably goes as far north as 69°. . . . It seems to be specially abundant in the vicinity of Great Slave Lake, as most of the eggs in the U. S. Museum collection came from either Forts Rae, Providence or Resolution, all three being practically situated on and near the lake. But a single brood is raised in a season. Nidification begins, sometimes at least, extremely early, eggs having been found May 1st, 1863, by Mr. (later Chief Factor) L. Clarke, at Fort Rae, in latitude 63° north. Messrs. Reid and Lockhart were the other contributors. The number of eggs in a set varies from seven to fourteen, and their ground colour from a fawn colour with a vinaceous rufous bloom to chocolate, tawny, and olive-brown in different specimens. The majority of the eggs are finely marked with small, well-defined spots of reddish-brown and lavender, resembling the markings found on the eggs of *Tympanuchus americanus*, only they are much more distinct. These markings are entirely superficial, and when removed leave the shell a creamy white in some cases and a very pale green in others. In shape they are usually ovate. A single egg taken May 16th, 1885, near Fort Providence, Mackenzie River, was obtained from Mr. R. MacFarlane, also of the same Company."

The Ottawa Museum, surprising to relate, does not possess a single specimen (skin or eggs) of this fine bird!

It may be mentioned *en passant* that on the 29th May, 1862, near Fort Yukon, Alaska, Mr. James Lockhart found an incomplete nest of four eggs belonging to the sub-species

308a, *P. phasianellus columbianus* (Ord.), one of which figured in Major Bendire's frequently referred to "Bird Life Histories." He says, "Like all of the grouse, the nest is always placed on the ground, usually close alongside of some tall bunch of coarse grass which hides it completely from view. From eleven to fourteen eggs are laid to each set. These are usually short ovate in shape, and very small for the size of the bird. The ground colour varies from creamy buff to pale olive brown. An occasional specimen has a pale vinaceous bloom overlying the ground colour. The majority of the eggs are slightly spotted with reddish brown; the markings for the most part are very fine, the spots varying from mere pin points to the size of No. 6 shot. All these markings are superficial and easily rubbed off on a freshly laid egg."

The Ottawa Museum contains but a skin specimen from each of Indian Head, Saskatchewan, and Medicine Hat, Assiniboia, donated by Mr. Spreadborough; also one set of eggs taken at Grenfell, Assiniboia, in May, 1894, and presented to the Museum by Mr. R. Lake!

331. MARSH HAWK—*Circus hudsonius* (Linn.).

Near the end of May, 1885, and at Fort Providence, an Indian found a nest of this hawk on the ground,—a scooped-out hole lined with dry grasses and small twigs, with a sprinkling of feathers. It held three fresh eggs. The parent was secured and her skin and eggs were later on shipped to Mr. Dalgleish. Another identified nest found in the same locality about the same time contained one egg, which was forwarded to Dr. Bell. Early in June, 1865, a female bird was snared on her nest, built on a willow bush along the lower Anderson River, having five eggs therein. In June, 1866, another nest was discovered in a similar position near Fort Anderson. It contained six eggs. Mr. Ross says it is common at Fort Resolution, Great Slave Lake. The egg measurements of seventy-three specimens in the U. S. National Museum collection average 46 by 36 millimetres.

The Dominion Museum contains six skins and two sets of eggs (one of six and one of four) taken at Edmonton, Alberta, in May, 1894, and in June, 1897, by Mr. W. Spreadborough.

332. SHARP-SHINNED HAWK—*Accipiter velox* (Wilson).

Although I do not remember having ever seen this particular hawk, yet it is a northern breeder and has been taken up there. I give it a place among these notes, especially in view of the following from the pen of the late Major Bendire: "This hawk breeds at least as far as latitude 62° north, Mr. R. Kennicott taking its nest and eggs near Fort Resolution, Great Slave Lake, on June 16th, 1860, and Mr. James Lockhart, of the Hudson's Bay Company, found it breeding in the same locality in June, 1863. The eggs taken by these gentlemen are in the U. S. National Museum at Washington. Mr. B. R. Ross also noticed it at Fort Simpson, on the Mackenzie River, in about latitude 63°N. The hawk in question, although small in size, is full of dash and courage, frequently attacking birds as large as itself and killing them with ease. Like its larger relatives—the vicious Cooper's hawk and goshawk—it has very destructive instincts. It lives mostly on small birds, and some of a larger size, such as pigeons, grackles, doves, and robins. Small rodents appear to furnish but a very limited portion of its food, and insects are likewise rarely eaten. No matter which way the selected victim may turn and double, his untiring pursuer is equally prompt, and only rarely will it miss capturing its quarry. Once struck, death fortunately follows quickly, as it fairly transfixes its victim's vitals with its long and sharp talons."

According to Professor Macoun this is one of the commonest hawks in the greater part of the Dominion of Canada, and quite a number of nests thereof have been secured. The Museum at Ottawa contains seven skins taken in Ottawa

and Chilliwack, B.C., and one set of eggs taken at Wood Mountain, Saskatchewan, June 12th, 1895. Nest found on a small tree about ten feet from the ground.

333. COOPER'S HAWK—*Accipiter cooperi* (Bonap.).

On the 11th of July, 1899, a male and female were shot in the vicinity of Fort St. James, Stuart's Lake, B.C. Although the species doubtless breeds in that quarter, no nest could be found. This was my first and only acquaintance with Cooper's hawk. It is not entered in Mr. Ross's Bird List. Bendire states that this hawk must be considered as one of the few really injurious Raptores found anywhere, and it is fairly common at all seasons throughout the greater part of the United States. It does, in the aggregate, more damage than all other hawks, and is the equal in every way, both in spirit and dash, as well as in blood-thirstiness, of its larger relative, the goshawk—lacking, however, the strength of the latter, owing to its much smaller size. It is by far the worst enemy of all the smaller game birds, living to a great extent on them, as well as on small birds generally. They lay from three to five eggs.

The Ottawa Museum contains one specimen skin, purchased with the Holman collection, and two sets of eggs taken in 1889 and 1895, in Leeds County, Ontario, and in North Toronto.

334. AMERICAN GOSHAWK—*Accipiter atricapillus* (Wilson).

An example bird shot near Fort Providence, early in June, 1885, was afterwards forwarded to Dr. Bell. In the spring of 1891, Mr. Henry McKay, of Pelican Narrows post, found a nest built on a tree at a height of fifteen feet. It was composed of twigs and grasses, with a few feathers, and contained five fresh eggs. The parent bird was seen and identified in the immediate neighbourhood. Dr. Russell obtained two specimens at Grand Rapids and seven at Fort Rae, while stationed at both points in the early nineties of

the last century. He states that this is the commonest representative of the order about Rae. This species is confidently believed to breed, in small numbers, however, in the wooded country lying between Fort Good Hope and the Anderson River. Common in the Yukon River valley, where, no doubt, Messrs. Kennicott and Lockhart obtained both skins and eggs.

Bendire states that "incubation, as with most of the larger raptores, lasts about four weeks. But a single brood is raised in a season. The number of eggs to a set is usually four or five. They are pale bluish-white in colour and unspotted. An occasional specimen shows slight traces of brownish-buff markings, which are probably old bloodstains. The shells of these eggs are somewhat rough to the touch, deeply-pitted and granulated. They vary in shape from ovate to elliptical ovate."

The National Museum at Ottawa contains two skins and two sets of eggs (two and three), one from Great Whale River, Hudson Bay, and the other was taken at Fort Saskatchewan, Alberta. The former's nest was built on top of a tamarac tree, of tamarac branches lined with green spruce branches and a few ptarmigan feathers, and the other, of sticks and twigs lined with weeds, was placed in a spruce tree at a height of about fifteen feet from the ground.

337b. RED-TAILED HAWK—*Buteo borealis calurus* (Cassin).

A very light-coloured specimen of this hawk was shot near Stuart's Lake in the spring of 1887, and it was sent to Washington in 1889. Dr. Russell obtained two specimens of *Buteo borealis* at Grand Rapids, Cumberland, in September, 1892, and seven more at Fort Rae in 1893. He states that this bird is quite common in the latter region. Neither *Buteo borealis* nor this sub-species appears in Mr. Ross's Bird List. It builds in trees and lays from two to four eggs, which are deposited at intervals of a couple of days. They greatly resemble those of the red-tailed hawk, but they sometimes

exhibit a larger proportion of spotted ones than the latter, while they average about 59 by 46.5 millimetres. This species is not uncommon in British Columbia, where it undoubtedly breeds. The Dominion Museum collection at Ottawa contains but one specimen, taken at Agassiz, B.C., May 17th, 1889, by Mr. W. Spreadborough!

342. SWAINSON'S HAWK—*Buteo swainsonii* (Bonap.).

On the 18th of June, 1885, a hawk of this species was shot near Fort Chipewyan, Athabasca, and it was duly forwarded to Dr. Bell. It has been met with at Great Slave Lake, while in July, 1860, we discovered a nest thereof which was built on a spruce tree along the banks of the Onion River, an important tributary of the Lockhart River, while the latter is the principal affluent of the Anderson River. It contained two well-grown young. Both parents were seen and the male was shot. They certainly made a great ado in endeavouring to protect their offspring. In June, 1865, another nest was found in the top crotch of a tall spruce pine in a ravine some twenty miles south-east of Fort Anderson. It contained but one egg, the contents of which were found in a well-developed stage of incubation. Mr. Raine states that this is a most useful bird to the farmer, as it devours an immense number of gophers and mice.

Bendire states that "incubation lasts about twenty-eight days, both sexes assisting, and the eggs, from three to four, are deposited at intervals of about two days. In shape they vary from a short ovate to an oval, and their shells are rather smooth and close-grained. Their ground colour when fresh is a very distinct greenish-white, which in course of time fades into a dull yellow-white. When not closely looked into many of this hawk's eggs appear to be unspotted, but on careful examination, there are, in reality, very few that are immaculate. The majority are more or less distinctly spotted and blotched with different shades of brown, such as burnt-umber, liver-brown, hazel, tawny, and of clay

colour, French gray, and drab-gray. With but very few exceptions, none of the eggs are heavily marked; about one-half are, however, moderately well spotted."

The Ottawa Museum contains four birds and a nest taken near Edmonton, with two eggs, in 1897, and another with two, built in a poplar tree, and composed of small sticks lined with bark and twigs, in 1888, at Chatham, Ontario.

347a. AMERICAN ROUGH-LEGGED HAWK—*Archibuteo lagopus sancti-johannis* (Gmelin).

In the spring of 1889, a male example of this hawk was shot near Fort St. James, Stuart's Lake. Although no nests were found in Athabasca or Cumberland districts, yet it is probable that a few straggler pairs breed in the northern sections of both. In the Anderson River region, however, no less than seventy nests were discovered. About fifty-five of them were built in the crotches of the tallest trees, not far from the top, and at a height of from twenty to thirty feet from the ground. They were composed of small sticks and twigs, and comfortably lined with hay, moss, down and feathers. The remaining fifteen were placed near the edge of steep cliffs of shelving rock, or on the face of deep ravines and other declivitous river banks, and in make they were somewhat similar to the foregoing. The eggs varied between four and five, never more than the latter number. The parents invariably manifested great uneasiness, and frequently gave utterance to vociferous screams of anger and distress, when their nests were approached. Early in June, 1864, one of our Indian employees found a nest containing three eggs on a high ledge of bituminous shale, and as the rule was to secure the parent bird in all possible cases for identification, having missed killing both, he placed a snare about the nest; but on going to visit it later in the day he was disgusted at finding the snare set aside, the eggs gone, and the birds not to be seen; but as there were no shell remains, he presumed that they had removed the eggs to a safer posi-

tion, which he, however, failed to discover. No other party could have taken them without leaving some trace of his presence thereabouts. "Dozens," and not as stated, "hundreds," of skins of this species were forwarded by us to the Smithsonian Institution. Mr. Ross says, "Rare" in Upper Mackenzie River. Quite a fine series of the eggs of this species from Fort Anderson is in the United States National Museum collection. With but few exceptions most of them were found during the month of June. The earliest date on which eggs were taken was on May 23. Incubation lasts about four weeks, and by the middle of July most of the young are hatched. They are deposited at intervals of two or three days, and were often found in different stages of incubation: "They vary greatly in size as well as in shape. Some are ovate, many short ovate, and others are rounded ovate. The ground colour in the more recently collected specimens is a pale greenish-white, which appears to fade out in time, leaving the egg a dull dingy-white. The shell is cross-grained and strong. There is an endless variety in the markings, both in regard to size and amount, in different specimens. In some they are fairly regular in shape as well as in size, in others exactly the reverse. In some they are well defined, evenly coloured throughout; in others quite clouded and of different tints. A few specimens are streaked and the markings run longitudinally from end to end. The spots and blotches consist of various shades of brown, the predominating being burnt umber and claret brown, and among these are mixed lighter shades of ochreous clay, fawn colour, and écru-drab. Quite a number of specimens show also handsome shell markings of a rich heliotrope-purple and pale lavender, mixed in and partly overlaid with darker tints. In many eggs the blotches are large and irregular in outline, and usually heaviest on the large end; but in no case do they hide the ground colour. Others are regularly and sparingly marked over the entire egg with fine dots of different shades of brown and lavender, giving the egg a

flea-bitten appearance. While some eggs are but slightly marked, none are entirely unspotted. To sum it up in a few words, they show a great variety of styles. Compared with the eggs of other Raptores they perhaps resemble those of *Buteo lineatus* in colouration more than any other species." There are three skins, and four sets of three and one of two eggs, taken in Ungava, and another set of three found on Artillery Lake, north of Great Slave Lake, by Bishop Lofthouse on June 4th, 1900, in the Ottawa Museum.

349. GOLDEN EAGLE—*Aquila chrysaetos* (Linn.).

A skin was obtained from an Indian at Fort Resolution, Great Slave Lake, on 26th May, 1885, and it was later forwarded to Dr. Bell. This eagle is believed to breed in the Fond du Lac section of Great Slave Lake. From various points along the valley of the Anderson River to its outlet in Liverpool Bay, and from near the mouth of the Wilmot Horton River in Franklin Bay, an aggregate of twelve nests of the golden eagle was procured in course of the breeding seasons from 1861 to 1865, inclusive. Ten of them were constructed on the side face, and within twenty or thirty feet of the summit, of steep and difficult of access earth and shaly ravine banks; and in the other two instances the nests were built near the top of tall spruce pines. One thus examined in 1864 was found to be of considerable size, and it was composed of a large platform of built-up twigs and sticks, having a bed of hay, moss, and feathers in the centre; and as this and other similarly constructed nests appeared to be annually renovated prior to re-occupation, they must ultimately assume vast proportions. Pillaged nests are, however, frequently deserted for a season, but in one instance where the female had been snared upon her nest and the eggs taken, it was found occupied the following summer, probably by the widowed male with another mate. She was shot and proved to be a mature bird. As above stated, in two instances only were the nests built near the top of tall spruce pines—

the sandy nature of the soil in their vicinity was not favourable for construction on cliffs. But in no case, however, did any of our party find, or our collectors report having seen, a large accumulation of bones or other food *débris* on or in the neighbourhood of the nests. The full set of eggs was invariably two in number, never more, and yet Major C. Bendire, in his aforesaid "Life Histories of North American Birds," states that James McDougall, Chief Factor Hudson's Bay Company, took three eggs from a nest found near Fort Yukon, Alaska, in the spring of 1868, and also that a like number of eggs had been secured by Mr. William Steinbeck, of Hollister, California, on March 21, 1891. In confinement, even when taken young, they are rather fierce and perhaps untamable, though they readily eat the food given to them, whether it be fish or meat. One of four thus reared at Fort Anderson a year or two later ferociously killed two of her partners. They kept their plumage in a very cleanly condition, and they always grasped their food in the talons of either leg and tore it up with their beaks. After feeding they at once set about removing any blood or other impurities which might have adhered to the beak by scratching it with their talons or rubbing it against the bars of the wooden cage. The eagles in question were thus kept in an unheated room in a dwelling-house during the colder months of the Arctic winter, but in April we had them removed to a larger cage outside, where they frequently exercised themselves by jumping off and on their roosting poles, and they also seemed much interested in all that they observed taking place within the Fort square. In this connection it seems remarkable that, in the case of the nests and young discovered by us, the parent eagles never gave any trouble or made any attempt to defend either. Mice, lemmings, and marmots form no unimportant item in the diet of the golden eagle, one of which was once observed by us hunting a Parry's *Spermophile*, or marmot, near Langton Harbour, Franklin Bay.

"One of the eggs is almost invariably a trifle larger than the other. Several days, sometimes a week, pass between the laying of the eggs. Incubation lasts about four weeks, and from personal observation (Major Bendire states) I believe the male does not take part in this to any great extent, but supplies his mate with food while she is so engaged. The young when first hatched are covered with white down, and grow very rapidly; but it takes fully two months or more before they are able to fly and leave the nest. They remain in company with the parents but a short time and are cast off as soon as they are able to take care of themselves. The usual call note is a shrill 'Keé-keé-keé,' uttered in a high tone; it is often heard in the early spring before nidification commences. Another note, not so frequently used—one of alarm—is 'Kiah-kiah,' repeated a number of times. The eggs vary from an ovate to a short ovate. Their shell is coarse, thick, and roughly-granulated. The ground colour is a dirty white, in some specimens approaching a pale cream colour. The markings of these eggs vary greatly, one set in the U. S. National Museum collection being almost pure white, without a spot of any kind on them, excepting a few stains. Others are thickly blotched and spotted with various shades of brown—claret, walnut, and ferruginous brown predominating. Some are principally marked with fine spots and blotches of drab colour and vinaceous rufous. In a few specimens pearl-gray and lavender shell markings, sparingly overlaid with darker tints, predominate, but in the majority of specimens these lighter tints are entirely absent. Except the unspotted eggs, no two are exactly alike.

"The twenty specimens in the U. S. National Museum collection—mostly from Arctic regions, excepting a few collected by myself in Oregon—average 74.5 by 59 millimetres. The largest of these eggs, from Fort Yukon, Alaska, measures 81 by 64, the smallest 71.5 by 54 millimetres. This was taken at Anderson River Fort, Arctic America."

There are no eggs, but four fine specimen skins, of the golden eagle in the Dominion Museum at Ottawa!

352. BALD EAGLE—*Haliaeetus leucocephalus* (Linn.).

Major Bendire has made no reference to the few specimens of eggs collected in the Mackenzie River District many years ago, nor to the several nests secured by us on the Lockhart and Anderson rivers. They were built on high trees close to the river banks, and were composed of dry sticks, twigs and branches, lined with deer hair, mosses, hay, and other soft materials. There were two or three eggs in each nest. In one instance only did the parents make any hostile demonstration when their nest was being robbed—they generally flew away and kept at a safe distance. They are not very numerous in the Arctic regions, while it is doubtful if any breed to the northward of Fort Anderson. An example bird was shot near Fort Resolution, Great Slave Lake, in the spring of 1885, and it was afterwards forwarded to Dr. Bell.

Major Bendire states that "incubation" lasts about a month, and both sexes take part in this duty. But a single brood is raised in a season. One of the laid eggs is always somewhat larger than the other, and occasionally this difference in size is quite marked. The eggs are pure white in colour, but frequently nest-stained; in very rare instances slight traces of markings are observable, of a pale buffy-brown, and in the handsome series of eggs of the bald eagle in Dr. Ralph's collection are two such specimens. The shell is strong, granulated, and without any lustre. The shape varies from a rounded ovate to an ovate, the former predominating. Eggs from the more northern breeding grounds are considerably larger than those from Florida and the Gulf Coast."

In his "Catalogue of Canadian Birds," Professor J. Macoun has entered the northern bald eagle under *H. leucocephalus alascanus* C. A. Townsend, 1899. The white-

headed eagle is noted as "common to the Arctic coast" by Mr. Ross. It also breeds in British Columbia.

There are two mature bird skins and one set of eggs from Halifax, N.S., and another of two taken on an island in the Gulf of Georgia, B.C., in the National Museum at Ottawa.

354a. GYRFALCON—*Falco rusticolus gyrfalco* (Linn.).

In the spring of 1885, near Fort Chipewyan, a nest composed of dry grasses and small twigs, with a sprinkling of feathers, was found on a tall spruce tree. It held two eggs. Both parents were shot, while both eggs and birds were duly shipped to Mr. Dalgleish. Dr. Bell was also the recipient of a skin obtained at Fond du Lac, Great Slave Lake, the same season. Major Bendire writes as follows of the Anderson collection: "Mr. R. MacFarlane states that this falcon is common in the wooded country on both sides of the Anderson River, and from the fact that over twenty nests were secured by him this must certainly be the case. All of these nests, with but two exceptions, were placed close to or near the tops of the tallest trees in the neighbourhood. One nest was built on a ledge of rock, and the other against the side of a deep ravine. The nests were composed of sticks and small branches, and lined with mosses, hay, deer hair, feathers, etc. They were similar in construction, but smaller in size than those of the bald eagle, and while the number of eggs was either three or four, their contents were frequently found in different stages of development. Both parents manifested much anger and excitement when interfered with, or even distantly approached. They made a great noise, and indeed more than once their folly in coming so near and screaming so loudly over their heads attracted attention to some that would otherwise have escaped notice. The earliest date of finding a nest was May 10th, 1863, at Fort Anderson. The eggs, three in number, were quite fresh. In another, taken five days later, the eggs contained

partially-formed embryos. In a few cases also, young birds were found in the same nest with eggs the contents of which were but little changed, and in another nest a perfectly fresh egg was found with several ready to hatch. In nearly every case the eggs seemed to be in different stages of development, and incubation seems to begin as soon as the first egg is laid. The latest date on which eggs were found by Mr. MacFarlane, according to the records in the United States National Museum, is 12th June, 1864, when two sets of four eggs each were taken."

The Major farther on writes: "Mr. James Lockhart found the gyrfalcon breeding on the Yukon River one hundred miles above the mouth of the Porcupine River, and took a nest and three eggs there in June, 1862. Messrs. McDougall and Jones also took their eggs near Fort Yukon, Alaska, in 1865, and all of these specimens are now in the U. S. National Museum collection. From our present knowledge it appears that the gyrfalcon breeds north of latitude 65°. It has not been found nesting farther south than this. In the general pattern of markings the eggs of the gyrfalcon approach those of the prairie falcon (*Falco mexicanus*) much closer than those of the duck hawk (*Falco peregrinus anatum*), which as a rule are much darker. In shape they vary from ovate to rounded ovate. The shells of these eggs feel rough to the touch, are irregularly granulated, and without lustre." It is my belief that this falcon is a "winterer" in the northern territories of Canada, where its prey would chiefly consist of partridges, rabbits, and ptarmigan. The allied *F. rusticollis* (Linn.), or more probably *F. islandus* (Brunn.), breed in small numbers in the Anderson region, as the Indians often spoke of a large whitish hawk, since observed by myself, which had successfully eluded all attempts to capture itself or its eggs. On the other hand, Professor John Macoun states that "there is no doubt but that this form was included in *F. islandus* by Sir John Richardson, as he found the birds nesting where Mac-

Farlane found this species, *F. rusticolus gyrfalco*, forty years later." The Ottawa Museum does not possess a single bird or egg of this species!

356. DUCK HAWK—*Falco peregrinus anatum* (Bonap.).

The skin of a bird shot at Fort Chipewyan in the spring of 1885 was sent to Dr. Bell. On the 18th of June of that year an Indian brought in two eggs which he found on the edge of a cliff at some distance north of the establishment. They had a mere sprinkling of leaves and feathers under them. He saw both parents, and believes they were hawks of this species. We did not observe this hawk at Fort Anderson, but several nests were discovered along some of the most difficult of ascent bank-cliffs of the Lockhart and upper Anderson rivers over forty years ago. Four eggs is the usual number in a set, and it may be said that the duck hawk constructs no nest whatever for its offspring—it merely lays its eggs on the bare earth or rock selected for this purpose. All of the discovered nests were found in the country to the southward of the post, and it is doubtful if they breed much beyond latitude 68° north. The duck hawk makes a great row when its eggs are taken. Early in August, for several successive years, young birds of the season, fully fledged but still attended by their parents, were noticed among the limestone and sandstone banks of the Mackenzie River. Mr. Ross says: "Rare to Great Slave Lake."

Major Bendire states that "this hawk must be fairly common in the Arctic regions and in the interior of Alaska, as attested by a number of sets of eggs, now in the United States National Museum collection at Washington, taken by Mr. R. MacFarlane (as above mentioned) and by Mr. Strachan Jones, at Fort Rae, Great Slave Lake, and Fort Resolution and other localities.

"But a single brood is raised in a season. Incubation lasts about four weeks, and both parents assist in this duty. The eggs of the duck hawk vary considerably in shape as well

as in colouration. The most common forms are short and rounded ovate, and occasionally a specimen is distinctly elliptical ovate. The ground colour when visible, which is not often the case, is pale creamy or yellowish-white; in some specimens this is evenly overlaid with colouring matter, giving it a light chocolate-coloured appearance, in others it approaches a pale yellowish-brown, and in one it is a decided fawn colour. The eggs are irregularly blotched, streaked, smeared, and spotted with various shades of claret-brown, vinaceous rufous and brick-red. In some the markings are well defined, in others confluent, giving them a clouded appearance—the majority are pretty evenly marked throughout; in a few they are more heavily spotted on one of the ends. Compared with the eggs of other falcons they are decidedly darker coloured, resembling the heavier marked and darker specimens of the eggs of Audubon's caracara (*Polyborus cheriway*)."

The Museum at Ottawa contains two skins, procured at York Factory, Hudson Bay, by Dr. R. Bell, and another taken at Edmonton by Mr. Spreadborough in May, 1897; also three sets of three eggs each, one from Red Deer, Alberta, and two from Fort Chimo, Ungava, taken by Mr. G. Bourchier in June, 1898.

357. PIGEON HAWK—*Falco columbarius* (Linn.).

The late Chief Trader John Wilson, then of Fort Rae, snared the female parent on a nest containing four eggs, which was built on a spruce tree. It was composed of dry twigs and grasses mingled with a few feathers. Both bird and eggs were forwarded to Mr. Dalgleish, summer 1886. In 1881 a nest holding three eggs (two of them broke) was found on a tree near Fort Providence. The parent was seen and well identified. The egg was sent to Dr. Bell. I would again quote from Major Bendire: "With but few exceptions, nearly all the eggs of this species in the U. S. National Museum collection were obtained north of the United States.

Mr. R. MacFarlane, who took several of their nests, says: 'This falcon ranges along the Anderson River to near the Arctic coast of Liverpool Bay. Several of their nests had apparently been built on spruce trees and others on ledges of shaly cliffs. The former were composed externally of a few dry willow twigs and internally of withered hay or grasses, etc., and the latter had only a very few decayed leaves under the eggs. In one instance the oviduct of the female contained an egg almost ready for extrusion; it was coloured like the others, but the pigment was still so soft that it adhered to the fingers on being touched. Other specimens taken from the oviduct were perfectly white. I would also mention the following interesting circumstance: On the 25th of May, 1864, a trusty Indian in my employ found a nest placed in the midst of a thick branch of a pine spruce tree, at a height of about six feet from the ground. It was rather loosely constructed of a few dry sticks and a small quantity of coarse hay. It then contained two eggs. Both parents were seen, fired at and missed. On the 31st he revisited the nest, which still held but two eggs, and again missed shooting the birds. Several days later he made another visit thereto, and, to his surprise, the eggs and parents had disappeared. His first impression was that some other person had taken them; but, after carefully looking around, he perceived both birds at a short distance, and this led him to institute a search, which soon resulted in his finding that the eggs must have been removed by the parents to the face of a muddy bank at least forty yards distant from the original nest. A few decayed leaves had been placed under them, but nothing else in the way of lining. A third egg had been added in the interim. There can hardly be any doubt of the truth of the foregoing facts.' " (I may now, 1908, add that the Indian was positive in saying that no nest had existed at the latter point previously.) "Mr. James Sibbiston took a nest and eggs at Fort Yukon, Alaska, in June, 1864. Messrs. Robert Kennicott and Alexander Mac-

Kenzie, each one, at Fort Resolution, Great Slave Lake, on June 6th, 1860, and Mr. Andrew Flett one at Fort McPherson, Peel's River, Arctic North America, in June, 1863. In all these cases the parent was taken and sent on with the eggs. Incubation probably lasts about three weeks, and but a single brood is raised in a season. The eggs are generally four or five in number, and these vary considerably in shape; some are short ovate, others rounded ovate, some nearly oval, and a few specimens elliptical ovate. The shell of the egg is close grained and without lustre. The ground colour when visible is pale creamy white as a rule, and is hidden by a reddish-brown suffusion of various degrees of intensity, and this again is finely marked or boldly blotched with different shades of burnt umber, claret-brown, and vinaceous rufous. These markings are generally equally and profusely distributed over the entire egg, and are superficial; occasionally they are most distinct about one of the ends, being disposed in the shape of a wreath. Compared with the eggs of other falcons, they resemble those of the duck hawk (*Falco peregrinus anatum*) closer than any others as far as colouration is concerned."

There are but four skins and a set of four eggs taken in Muskoka, Ontario, 24th May, 1890, and received from Mr. W. Raine, in the Dominion collection at Ottawa!

358. RICHARDSON'S MERLIN—*Falco richardsoni* (Ridgway).

Writing in 1892, Major Bendire states that: "From an examination of the series of skins of the sub-genus *Esalon*, in the U. S. National Museum collection, it plainly appears that the northern range of Richardson's merlin is not nearly so extended as that of the common pigeon hawk. Among the numerous specimens received through the exertions of some of the gentlemen of the Hudson's Bay Company from the Great Slave Lake, the Mackenzie and Anderson River region, there is not a single one referable to this species, and it is doubtful if it reaches a higher latitude than

55° north in the interior, though on the Pacific coast it may possibly be found somewhat farther northward during the breeding season. There are no absolutely identified eggs of Richardson's merlin in the U.S. National Museum collection. Its mode of nidification, and the eggs as well, are doubtless very similar to those of the common pigeon hawk, and indistinguishable from them, but may possibly average a trifle larger in size." According to Professor Macoun this species breeds in "Alberta and Saskatchewan. The first authentic set of eggs on record is in my collection. It was taken by Mr. Roy Ivor, south of Moose Jaw, on May 20th, 1893. The nest, containing four eggs, was made of sticks and weeds and built in a poplar tree top. The next set recorded was found by Mr. J. E. Houseman at Calgary, Alberta, May 12th, 1894." It does not appear in Mr. Ross's List. There are no specimens, birds or eggs, in the National Museum at Ottawa!

360. AMERICAN SPARROW HAWK—*Falco sparverius* (Linn.).

At Fort Resolution, on 1st June, 1885, a nest was found in a spruce tree. It was constructed of small twigs lined with withered leaves, and contained two fresh eggs. The female parent was shot, and both eggs and bird-skin were forwarded to Mr. Dalglish. Earlier the same season, Mr. Reid, of Fort Providence, procured from the Indians the contents of several nests, so that eleven eggs and two parent skins were sent to Dr. Bell. We never observed any well-authenticated examples of this hawk in the Anderson River country, while Mr. Ross in his "List of Mackenzie River Birds" states that they go north to La Pierre's House, but are "rather rare."

Major Bendire states that "this handsome little falcon is pretty generally distributed over the American continent, excepting, perhaps, the extreme Arctic portions thereof, and in the interior, at least as far north as Fort Rae, Great Slave Lake, latitude 63° north, where Mr. L. Clarke obtained a

specimen many years ago. The number of eggs laid by this species seems to vary from three to seven—the latter number is rare, however, five and four being the number most commonly found. Personally he examined some forty nests, and in no case did he find over five eggs to a set. They are deposited at intervals of a day. Their shape varies greatly, the majority ranging from a rounded ovate to an oval, and a few may be called elliptical ovate. A very peculiarly shaped set in the U. S. National Museum collection he would call blunt cuneiform. The ground colour of these eggs ranges from a pure clear white in a few instances to pale buff or cream colour in the majority, and to a light cinnamon rufous in a few others. They are spotted, blotched, marbled, and sprinkled with different shades of walnut brown, chestnut, cinnamon rufous, and ochraceous in various patterns; frequently these markings are confluent, predominating in some specimens on either end; in others they are heaviest in the centre, forming a wreath. Mixed among the various tints a few eggs show handsome lavender coloured shell markings. Scarcely any two sets are exactly alike. In some the markings are regular and minute, in others they are coarse and bold, and occasionally a specimen is entirely unmarked, being pure white throughout. He found two such eggs among first sets. There are but two skins, and no eggs, in the Ottawa collection!

371. RICHARDSON'S OWL—*Cryptoglaux tengmalmi richardsoni* (Bonap.).

In the month of May, 1885, an example of this owl was shot at Fond du Lac, Athabasca, which was later on forwarded to Dr. Bell. An owl very like this one was repeatedly observed by us in the forest region situated between Fort Good Hope and Fort Anderson. Up to 1892, "the only genuine eggs of Richardson's owl in the U. S. National Museum collection are three collected by Chief Trader B. R. Ross at Fort Simpson, Mackenzie River, in latitude 62°

north, on May 4th, 1861. As there appear to be no memoranda showing the exact manner in which these eggs were obtained by him, it is likely that they were either taken from a cavity in, or from an open nest on, a tree. The number of eggs usually laid is from three to seven. They are pure white in colour and oval in shape. The shell is smooth, close-grained, and shows but little lustre." There are only two skins in the Museum at Ottawa, and no eggs!

375b. ARCTIC HORNED OWL—*Bubo virginianus arcticus*.
(Swain.).

I would here again quote from Major Bendire's interesting "Life Histories of North American Birds": "Mr. R. MacFarlane met with the Arctic horned owl in the country between Fort Good Hope, on the Lower Mackenzie, and the Anderson river region, within the Arctic circle, and in a collection of birds and eggs recently received from him is a very light-coloured female of this race, a perfectly typical specimen, from Moose Lake, Cumberland, shot in May, 1890, which probably marks nearly the southern limit of its breeding range. These birds feed on the numerous water-fowl, ptarmigan, and the varying hares inhabiting these regions, and are probably common enough in suitable localities where an abundance of food is easily obtainable. Nothing is as yet known about their nesting or their eggs, which are not likely to differ from those of the preceding races." And yet in face of this authoritative statement I find in the receipted list of specimens at Washington, collected in Cumberland, season 1891, two eggs (one set) entered under *Bubo virginianus sub-arcticus*. A skin of *B. virginianus arcticus* is also acknowledged. Having lost or mislaid some of the field-notes of that year, I cannot now furnish any relative information. There are no specimens of the bird or its eggs in the Dominion Museum at Ottawa!

376. SNOWY OWL—*Nyctea nyctea* (Linn.).

A winter example was obtained at Fort Resolution for Dr. Bell, and another at Pelican Narrows, Cumberland, which was forwarded to Washington. Despite our best efforts, we failed to secure even one nest of the snowy owl during our five years' residence at Fort Anderson. On one occasion, however, we noticed a bird of the species hunt and eventually kill a marmot (*Spermophilus empetra*) in the Barren Grounds which happened to be at some distance from its burrow. There can be no doubt that all of the resident owl family, and other birds, as well as foxes, frequently rob the contents of ptarmigan, duck and plover nests there and elsewhere. Mr. Ross says "rare" in Mackenzie River. General Greely, when at Fort Conger, Grinnell Land, relates that "a nest taken by us resembled that described by Major Feilden, which was a mere hollow scooped out of the earth and situated on the summit of an eminence which rose from the centre of the valley. In this case a few feathers and a little grass were present." The referred-to Feilden nest was found in latitude $82^{\circ} 40'$, probably the most northerly point at which this species has been found nesting." Incubation begins with the first eggs laid, which are deposited at irregular intervals. Young birds are often found in the same nest with nearly fresh eggs. Mr. Turner says the old birds, especially the female, are very fierce in defense of their young. From three to ten eggs are laid by this species, usually from five to seven. But one brood is raised in a season. The eggs are white in colour, with a fairly perceptible creamy tint in some instances, and are oblong oval in shape. None of these eggs are as round as those of the genus *Bubo*, and their shell is roughly granulated and without lustre. A few corrugated lines, starting a trifle beyond the centre of the egg and running to the larger axis, are noticeable in the majority of specimens examined by him.

The Ottawa Museum contains five skins of this owl, including a pure white one taken north of the Capital city, but no eggs!

377a. AMERICAN HAWK OWL—*Surnia ulula caparoch*
(Müll.).

Dr. Bell was the recipient of a female example, shot at Fort Providence early in April, 1885, and also of two eggs taken from a nest found on a spruce tree in the same quarter on the 14th of the same month, the parent of which was seen and identified as a hawk owl. Towards the end of May, 1885, the late Mr. Joseph Mercredi, of Fond du Lac, obtained from an Indian the female parent and five eggs, found in a nest built in a tree at some distance north of his post in Athabasca district. The contents of the eggs from both points were quite fresh. Both specimens were forwarded to Mr. Dalgleish. In 1889 an example skin from each of Forts Babine and St. James were secured and forwarded to Washington.

This bird is not uncommon in the region of Anderson River, although only four nests were discovered there some forty years ago. They were all built on spruce pine trees at a fairly high height from the ground, and were constructed of small twigs, branches, and lined with dry grasses and moss. One of them contained two young birds, aged respectively about ten days and three weeks, together with an addled egg. The others, however, held six eggs each, and the fourth as many as seven. This species is one of the Arctic "winterers." The parent birds were naturally very indignant with our procedure.

According to Mr. B. R. Ross it nests occasionally in cliffs, but its usual nesting sites are probably natural cavities in trees, where they are obtainable, but when such are wanting, open nests placed on the decayed tops of stumps or among the limbs of thick and bushy conifers are used. Mr. Raine, of Toronto, has a clutch of seven eggs and another

of four eggs of the snowy owl, taken by Mr. Young on Herschell Island, west of the outlet of the Mackenzie River. There are four skins, but no eggs, in the Ottawa Museum! Major Bendire also states that the eggs of this hawk are from three to seven in number, and nidification commences frequently long before the disappearance of the ice and snow. Like the hawk owl of the Old World, it lays at irregular intervals and commences to incubate as soon as the first egg is deposited, both sexes taking part in these duties. Eggs may be looked for from the latter part of April and through the month of May. These vary from oval to oblong oval in shape, are pure white in colour, and somewhat glossy. The shell is smooth and fine grained. They resemble the eggs of the short-eared owl very closely and are scarcely distinguishable from them.

390. BELTED KINGFISHER—*Ceryle alcyon* (Linn.).

▶ At Fort Providence Mr. John Reid shot a male bird on the 16th of May, 1884, and a week later he secured a female, and both were duly forwarded to Dr. Bell. Although some birds were seen on the Anderson and elsewhere, and several skins were obtained from the Eskimos, yet we never found any nests nor received its eggs from the natives. In fact, they were not desired. According to Major Bendire this species nests in a burrow or tunnelled bank. The number of eggs varies usually from five to eight, and sets of six or seven are most often found. Instances, however, have been recorded where as many as fourteen eggs have been taken at one time. The eggs are pure white in colour; the shell is strong, fine grained, smooth, and rather glossy, especially so in fresh eggs. In strongly incubated ones this gloss is less noticeable. The eggs are generally short ovate and sometimes rounded ovate in shape.

The Museum at Ottawa contains ten skins and two sets of seven eggs each from British Columbia.

393a. NORTHERN HAIRY WOODPECKER—*Dryobates villosus leucomelas* (Bodd.).

On the 6th of May, 1885, Mr. Reid discovered a nest in a hole in a dry standing poplar tree near Fort Providence. There were eight eggs therein, and the parent was seen and shot. Dr. Bell became the intended recipient of both. At Fort St. James, Stuart's Lake, on the 25th of May, 1889, a native hunter found a nest holding four fresh eggs in a similar position. Both parents in this instance were also observed near by and shot. On 4th June, in the same locality, an Indian girl brought us four eggs and a live *Sialia arctica*, which she asserted to be one of the parent birds. The nest was found in a hole in a dry pine tree, at a height of several feet above the ground. She placed a snare across the entrance thereto, and on going to visit it soon after, she stated that she caught the bird with her hand as she emerged therefrom on her approach. I could not, however, believe that these large, apparently woodpecker eggs belonged to so small and different a species, and after carefully identifying the bird I liberated it. Twenty days later the contents (four eggs) of a third nest were obtained, but the parent could not be secured, while they have been receipted from Washington *under this heading*. All of the nests in question had a small sprinkling of wood dust placed beneath the eggs.

Major Bendire states that Mr. Ross took a male near Fort Simpson, Mackenzie River, on December 29th, 1860, and Mr. McQuestion obtained a female at Fort Reliance, Upper Yukon River, on September 15th, 1878. Both specimens are in the National Museum at Washington, D.C.

The National Museum at Ottawa contains seven bird specimens and but one set of eggs, taken near Toronto, and presented by W. Raine!

394a. GAIRDNER'S WOODPECKER—*Dryobates pubescens gairdnerii* (Cabanis).

An example of this woodpecker was shot near Stuart's Lake early in the season of 1889, but we failed to find any of its eggs, although there can be no doubt that it breeds in that and other sections of New Caledonia district, B.C.

Bendire writes: "In general its habits, food, call notes, and mode of nidification are similar to those of the downy woodpecker. The eggs also resemble those of the downy in every respect, but average a trifle smaller." The Dominion collection at Ottawa possesses eleven skins, but no eggs, of this woodpecker!

394b. BATCHELDER'S WOODPECKER—*Dryobates pubescens homorus* (Cab.).

This species undoubtedly breeds in New Caledonia. In 1889 we obtained a skin at Fort St. James, but its eggs are still unknown to us. The general habits, food and nesting, etc., resemble those of the preceding sub-species. The eggs are also similar. The Dominion collection at Ottawa contains three skins, but no eggs, of this woodpecker!

400. ARCTIC THREE-TOED WOODPECKER—*Picoides arcticus* (Swainson).

On the 1st of June, 1885, a Chipewyan Indian brought to the Fort a female skin and six eggs, the former of which he claimed to have shot, and to have found the latter in a hole in a dry standing spruce tree, lined in the usual woodpecker manner. Contents of eggs fresh, and both were duly forwarded to Mr. Dalgleish. About ten days earlier, a pair of these birds were also shot at Fort Providence and sent to Dr. Bell. At Fort St. James, Stuart's Lake, on the 24th of June, 1889, an Indian found a nest containing four eggs in a similar position. It is believed that this species breeds and also winters in the Arctic regions. My notes re-

cord the finding, on 30th May, 1863, of a nest containing three perfectly fresh eggs—a mere hole in a dry spruce several feet from the ground. A female bird answering to the given description was shot in its vicinity. It may, however, have been an example of *P. americanus*."

Bendire states that "there are several specimens in the National Museum collection, from Moose Factory, James Bay, and others from Forts Rae and Providence, on Great Slave Lake; from Fort Chipewyan, on Lake Athabasca, and one from Fort Reliance, Upper Yukon, latitude 64° north. Mr. R. MacFarlane found it nesting at Fort Providence, latitude 61° north. It is essentially a bird of the pine, spruce, fir, and tamarack forests, and is rarely seen in other localities, and probably breeds wherever found. Its flight is swift, generally undulating, and is often protracted for considerable distances. The food of this woodpecker seems to consist almost entirely of tree-boring insects and their larvæ, mainly *Buprestidæ* and *Cerambycidæ*. Both sexes assist in nidification. Only one brood is raised in a season. The eggs are generally four in number. These are mostly ovate in shape. The shell is fine grained and only moderately glossy, and, like the eggs of all woodpeckers, pure white in colour." There are nine skins, but no eggs, of this woodpecker in the Museum at Ottawa!

401. AMERICAN THREE-TOED WOODPECKER—*Picoides americanus* Brehm.

On 15th May, 1885, a nest of this woodpecker was found in a cavity of a tree not far from Fort Providence, containing four fresh eggs. The parent was shot. Both bird and eggs were forwarded to Dr. Bell. At page 79 of Vol. II. of his "Bird Life Histories," Bendire writes: "During a careful examination of the series of specimens of this bird and its two recognized sub-species, I found several skins collected by Mr. R. MacFarlane, in the vicinity of Fort Anderson, in latitude 68° 30' north, North-West Territory, which

appear to me to come nearer to this species than to *P. americanus alascensis*, to which Mr. Nelson refers them. Mr. MacFarlane also forwarded two sets of eggs, with the parents, at the same time, and some of these are now in the United States National Museum collection. A single egg, originally from a set of three, taken on 10th May, 1863, accompanied by the female bird, was taken from a cavity in a pine tree four feet from the ground, and another set of four, of which there are three eggs remaining, and likewise accompanied by the male bird, was taken on 5th June, 1864, from a hole in a dry spruce situated about six feet from the ground. The eggs from the last set were said to have been lying on the decayed dust of the tree and were perfectly fresh when found. For some reason no mention has been made of these eggs in the "History of North American Birds," although they were in the collection when that work was written and were correctly labelled." Mr. Ross's List contains three species of *Picoidæ*.

Bendire further adds: "The usual number of eggs laid appears to be four, and both sexes assist in incubation. Mr. MacFarlane, in his MS. notes, mentions finding a nest of four young woodpeckers, in all probability of this species (as one of these birds was seen in the vicinity on 21st June, 1862), which were then already apparently about a week or ten days old. As incubation probably lasts about fourteen days, the eggs must have been laid in the last week in May. The eggs of this woodpecker are ovate in shape and pure white in colour; the shell is fine grained and only moderately glossy." There are neither birds nor eggs thereof in the National Museum at Ottawa!

401a. ALASKAN THREE-TOED WOODPECKER—*Picoides americanus fasciatus* (Baird).

It is my belief that this particular woodpecker also breeds in the valley of the Anderson, and that in all probability some of the above-mentioned eggs really belonged thereto.

Mr. W. Raine's note in Professor Macoun's "Catalogue of Canadian Birds" is interesting: "According to Oliver Davis's 'Nests and Eggs of N. A. Birds,' nothing has been published regarding the nest and eggs of this species. It therefore gives me pleasure to make the following record of a set in my collection of five eggs which were taken with the parent bird on May 29th, 1897, at Peel's River, which runs into the mouth of the Mackenzie River. Nest, a hole in a coniferous tree about ten feet from the ground. The eggs average .90 by .65. The Reverend (now Bishop) J. O. Stringer secured the parent and found its crop filled with seeds and worms." There are no specimens of birds or eggs of this species in the Ottawa Museum!

402. YELLOW-BILLED SAPSUCKER—*Sphyrapicus varius*
(Linn.).

Mr. Reid managed to secure a nest containing four fresh eggs, near Fort Providence, about the middle of May, 1885. It was in the cavity of a tall spruce tree. The parent was shot and the specimens were later forwarded to Mr. Dalgleish. An example skin was obtained at Cumberland House in June, 1890, and another at Pelican Narrows the following season. Major Bendire, however, states that "a set of eggs taken near Fort Resolution, Great Slave Lake, in June, 1862, by Mr. Alexander MacKenzie, is now in the United States National Museum collection. Mr. R. MacFarlane also found it breeding at Fort Providence, near the head waters of the Mackenzie River, in the spring of 1885 (as above mentioned), this being the most northern breeding record known to me; but there is a specimen in the collection which is labelled as having been taken one hundred miles north-west of Fort Simpson, which marks the most northern known point of its range, where it probably also breeds. It takes a week or ten days to complete the excavation in a large dry or green tree for a nesting site, which is usually gourd-shaped and varying from six to eighteen inches in

depth. The entrance hole is circular, about an inch and a half in diameter, just large enough to admit the bird. A layer of fine chips is left in the bottom, on which the eggs are deposited. The sexes relieve each other in this work, and also share the duties of incubation. From five to seven eggs are laid to a set, those containing five or six being most common. An egg is deposited daily, and should the first clutch be taken, a second, usually of four eggs, is laid about two weeks later, frequently in another ready excavation in the same tree. They are devoted parents. The eggs are pure white in colour, close-grained and only moderately glossy; in shape they vary from ovate to elliptical ovate and occasionally to an elliptical oval." There are seven skins, but no eggs thereof, in the Ottawa Museum!

403a. RED-BREASTED SAPSUCKER—*Sphyrapicus ruber notkensis* (Suckow).

On 25th May, 1889, near Fort St. James, Stuart's Lake, an Indian found a nest in a hole of a standing dead tree, lined with wood dust and a few very small twigs and feathers. It held six eggs, and both parents were seen and shot in the vicinity. Six days later another nest with eggs was taken in the same locality. A young bird of the year was also captured at Fort Babine, more than a hundred miles farther north. This species is fairly abundant throughout New Caledonia district. The United States National Museum became the recipient of these birds and eggs.

Major Bendire states that "the eggs when fresh and before blowing, like those of all woodpeckers, show the yolk through the translucent shell, giving them a beautiful pinkish appearance, as well as a series of straight lines or streaks of a more pronounced white than the rest of the shell, running toward and converging at the smaller axis of the egg. After blowing, the pink tint will be found to have disappeared and the egg changed to a pure, delicate white, the shell showing a moderate amount of lustre. There is considerable variation in their shape, running as they do through all the

different ovates to an elongate ovate. Both sexes assist in incubation, which lasts from twelve to fourteen days. Their food consists principally of grubs, larvæ of insects, ants, various species of *lepidoptera*, which they catch on the wing like fly-catchers, and berries." The Dominion Museum at Ottawa does not own a skin or egg of this species!

405. PILEATED WOODPECKER—*Ceophlæus pileatus* (Linn.).

In the spring of 1889 four male birds of this woodpecker were shot—three of them near Stuart's Lake, and the fourth at Fort Babine—and the skins were later forwarded to Washington. Major Bendire states that Chief Trader B. R. Ross, of the Hudson's Bay Company, had taken an example at Fort Liard, in the extreme north-eastern corner of British Columbia, and Mr. John Reid one on Big Island, in Great Slave Lake, which marks the most northern point of its known range. An egg is deposited daily, and incubation begins occasionally before the set is completed, and lasts about eighteen days, both sexes assisting in this duty, as well as in caring for the young. Like all woodpeckers, the pileated are very devoted parents, and the young follow them for some weeks after leaving the nest, until fully capable of caring for themselves. Only one brood is raised in a season. The eggs are pure china-white in colour, mostly ovate in shape; the shell is exceedingly fine grained and very glossy, as if enamelled; they are not as pointed as those of the ivory-billed, and average smaller. Professor Macoun has excluded this species from his Catalogue, and has instead entered "*C. pileatus abieticola* Bangs," 1898, the northern sub-species adopted since Major Bendire's death a year or two before. The Ottawa Museum contains nine skins thereof, but no eggs!

412. FLICKER—*Colaptes auratus* (Linn.).

On 7th June, 1885, a nest in a hole in a poplar tree was found near Fort Chipewyan, which contained four fresh eggs. The female parent was shot. Six days earlier an-

other nest, holding four eggs, was taken in the same locality and from a similar position. Mr. Dalglish eventually became possessor of all of these specimens. At Fort St. James, on 1st June, 1889, a nest with seven perfectly fresh eggs was discovered in a tree-hole at a height of seven feet. Parent was shot. In his receipt thereof Major Bendire remarked that "she was a very peculiarly marked bird." From Cumberland House, season 1890, a set of four eggs, and in 1891 as many as twenty-eight eggs, most of which were gathered by Mr. Henry McKay, of Pelican Narrows, were sent to Washington—a couple of skins accompanied them. Major Bendire's remarks under this heading are worthy of reproduction herein: "The breeding range of the flicker is more extensive than that of any other member of this family found on the North American continent, ranging from about latitude 28° in Florida to Fort Anderson, British North America, in latitude 68° 30' north, and probably still farther north. Here Mr. R. MacFarlane reports it as by no means scarce in the valley of the Anderson River; but as its eggs were not in demand, very few indeed were gathered for transmission to Washington. It probably breeds throughout Alaska. Both Messrs. J. Lockhart and Robert Kennicott forwarded skins and eggs from Fort Yukon, which are now in the U. S. National Museum collection, and it has been taken within a few miles of the coast in Behring Strait." "One of the most western breeding records known to me is that furnished by Mr. MacFarlane, from Fort St. James, B.C., who found the flicker not uncommon there. Both skins and eggs (as above noted) were taken in the summer of 1889, having been forwarded by him to the United States National Museum. The flicker is also one of the most social of our woodpeckers, and is apparently always on good terms with its neighbours. Birds which migrate usually return to their summer homes early in April, and occasionally even in March, and one will not have to go far then without hearing some of its many and rather melodious

calls. The males usually precede the females by a few days, and as soon as the latter arrive one can hear their well-known notes in all directions. The eggs of the flicker are glossy white in colour, and when fresh appear as if enamelled; the shell is very close-grained and exceedingly lustrous, as if polished, resembling the eggs of the ivory-billed and pileated woodpeckers in this respect. They are quite variable in shape; the majority are ovate, others short and elliptical ovate, and a few approach sub-pyriform, while some are nearly perfect ovals. An egg is deposited daily until the set is completed, and incubation lasts about fifteen days. This ordinarily does not begin until the set is completed, but now and then young birds and eggs in different stages of advancement are found in the same nest. The parents are devoted in the care of their young, and will frequently allow themselves to be captured on the nest. In the more northern portions of their range only a single brood is raised in a season—in the south possibly two. The return migration to their winter homes usually begins about the latter part of September, and is occasionally protracted from four to six weeks later in favourable localities."

In his "Catalogue of Canadian Birds" Professor Macoun has entered this species under *C. auratus luteus* Bangs, 1898. I think he is right, but as the Major has described our specimens under the old name, I retain it in the meantime. The Dominion Museum at Ottawa contains twelve skins and one set of fourteen eggs, taken at Hurdman's Bridge, near Ottawa. Nest found in a hole in a tree where the female had nested for years. Another set of two taken at Old Wives Creek, Assiniboia, May 30th, 1895. Nest in a hole in *Acer negundo*.

420. NIGHT HAWK—*Chordeiles virginianus* (Gmelin).

This species has been met with as far north as Fort Good Hope, Mackenzie River, where Chief Trader James Lockhart shot a bird over forty years ago. I have frequently

heard its peculiar call at many points south of that place, while I discovered a nest thereof containing two eggs on the banks of the Clearwater, one of the principal tributaries of the Athabasca River, in the end of June, 1873. The nest was a natural depression in the ground lined with a few withered leaves. Major Bendire found the "egg shell strong, close-grained and generally moderately glossy; in shape they vary from elliptical ovate to elliptical oval, the former prevailing in the majority, one end being a trifle smaller than the other. Their ground colour is quite variable, and ranges from a creamy white through different shades of cream, olive-buff, and olive-gray, and they are profusely blotched and speckled with different shades of slate, black, drab, smoke, and lilac gray, and tawny olive mixed with lighter shades of pearl-gray, lavender, and plumbeous. In some specimens the markings are fine and uniform in size, almost obscuring the ground colour; in others they are less numerous but large and prominent. There is an endless variation in their markings. Scarcely any two sets resemble each other closely, and I consider the egg of the night hawk one of the most difficult ones known to me to describe satisfactorily."

The Ottawa Museum contains two skin specimens taken at Ottawa by Mr. G. R. White, and one set of two eggs taken from roof of house 374 Gilmour Street, Ottawa, June 12th, 1895, by Mr. R. H. A. Hunter; another set of two eggs taken on bare rock in the township of Methuen, Peterboro' County, Ontario, by Mr. J. Keele, June 3rd, 1899.

420a. WESTERN NIGHT HAWK—*Chordeiles virginianus henryii* (Cassin).

On June 17th, 1889, Mr. Charles Ogden, then in charge of Fort George, Fraser River, B.C., found a nest in a small cavity in the ground, lined with a few withered leaves and containing two eggs, the contents of which were fairly fresh. Another nest with eggs was obtained near Fort St. James, Stuart's Lake, about the same time. Both sets and a bird

skin were duly forwarded to Washington. The species might be considered as a common summer resident in New Caledonia district. Major Bendiré remarks that "the eggs of the western night hawk, both in shape and markings, are scarcely distinguishable from those of the eastern bird, and the same description will answer for both. On the whole, however, the lighter coloured types seem to predominate over the darker ones." There are in the Dominion Museum at Ottawa nine skins from British Columbia, and one set of eggs taken at Robson, Columbia River, by Mr. J. Macoun, and another set of two taken at Atlin Lake, B.C., by Mr. W. H. Boyd, on 25th June, 1900.

433. RUFOUS HUMMING BIRD—*Selasphorus rufus* Gmelin.

When travelling by canoe from the Fraser to Fort St. James by way of the Stuart River, on 24th June, 1889, Mr. Ogden discovered a nest containing two nearly fresh eggs. It was placed on a bush, and both parents were seen and the male was shot. (The bird, nest and eggs were duly forwarded to Washington.) He found them to be fairly abundant in that locality, while they are not uncommon around Stuart's Lake. "The nests of this species are lined with cotton down, while the outside is more or less profusely covered with fine mosses, shreds of bark, and occasionally a few lichens. An average nest measures $1\frac{1}{2}$ inches in outer diameter by $1\frac{1}{4}$ inches in depth; the inner cup is about seven-eighths of an inch in width by one-half inch deep. The eggs resemble those of other humming birds in colour and shape, the average measurement being about 0.50 by 0.33 inch." Sir John Richardson states that this species was originally discovered at Nootka Sound by the celebrated Captain Cook, and that he had himself examined one of the identical specimens.

The red-breasted humming bird (*Trochilus colubris*) doubtless breeds in the district of New Caledonia, while Major Bendire states that "Sir John Richardson met there-

with as far north as the fifty-seventh parallel of latitude. None of the numerous gentlemen connected with the Hudson's Bay Company interested in ornithological investigation in the far north appear to have met with it in the lower Mackenzie Basin and along the shores of Great Slave Lake. The nest of this species is one of the most exquisite pieces of bird architecture to be found anywhere." There are twenty-five skins and only one set of eggs of this species in the Ottawa Museum!

456. PHOEBE—*Sayornis phæbe* (Latham).

Early in June, 1880, a nest holding four eggs was taken by Chief Trader William C. King at Fort Rae, Great Slave Lake, which, with the secured parent, were forwarded to Mr. Dalglish the following summer. An example skin obtained near Fort Providence, spring 1885, was sent to Dr. Bell. In continuation I quote from Bendire's great work: "The phoebe reaches as far north as Fort Simpson on the Mackenzie River, latitude 62° north and longitude 122° west, where Mr. B. R. Ross obtained a female in May, 1861. Its nest and eggs have been taken on Lesser Slave Lake by Mr. Strachan Jones. It has also been obtained by Chief Trader J. Lockhart at Fort Resolution; and Mr. H. McKay found the phoebe common about Pelican Narrows, Cumberland, in June, 1891, sending several sets of eggs from there to Washington. He says in his notes accompanying them that 'they build in natural cavities in trees and in crevices of rocks. The Indians call them "Moose Birds," as they often use moose hair in lining their nests. They lay in June, and are very bold for their size, often chasing hawks. The number of eggs to a set varies from three to six; usually four or five are found, and one is deposited daily. Incubation lasts about twelve days; the young are fed entirely on insects, mainly on small butterflies, which are abundant about that time, and they are ready to leave the nest in

about two weeks, when the male takes charge of them, the female in the meantime getting ready for a second brood. The eggs are ovate and short ovate in shape, and resemble those of the common phœbe in every respect excepting that they are a trifle larger in size."

The Ottawa Museum holds but four skins and one set of four eggs found 21st June at Lac des Isles! Nest of grass, wool, moss, hair, bark and other soft material placed under a projecting bank of a creek, two and one-half feet from the water.

467. LEAST FLYCATCHER—*Empidonax minimus* Baird.

Examples of this species, which doubtless breeds at Forts Chipewyan, Rae and Resolution, were obtained in the spring of 1880 and afterwards forwarded to Mr. Dalglish. Two skins and two sets, consisting of seven eggs, taken at Pelican Narrows and Cumberland House, were receipted at Washington, season 1891.

Bendire states that it does not appear to be rare in the far north, as there are several breeding records thereof in the U. S. National Museum, by Messrs. R. Kennicott and J. Lockhart, from Fort Resolution, Great Slave Lake; by Mr. B. R. Ross, from Fort Simpson, and by Miss Elizabeth Taylor, near Lake Athabasca—all in the Canadian North-West Territory. The eggs vary from three to six in number, usually four, and one is deposited daily. They are short and rounded oval in shape; the shell is strong and thick for its size, and without lustre. The ground colour is pale creamy white and they are unspotted. The cow bird (*Molothrus ater*) imposes its eggs on several of our smaller flycatchers, including occasionally the one now under consideration.

There are eight skins, and five sets of eggs with four eggs each, and two with three,—all taken in the first ten days of June, 1897, at Edmonton, by Mr. W. Spreadborough.

468. HAMMOND'S FLYCATCHER—*Empidonax hammondi*
Xantus.

From an article published in Volume II. of the "Proceedings of the United States National Museum, 1879," by the late eminent and well-known oölogist, Dr. Brewer, of Boston, I find a reference to some eggs of this flycatcher, obtained from "Anderson River," which I conclude were sent to the Smithsonian Institution among a number of unidentified specimens, as I can discover no specific record thereof, nor of an example of *Myiodiotes pusillus*, entered in the Receipt List of Birds under either heading in my field-notes. Major Bendire writes: "Hammond's flycatcher is evidently a very common summer resident in central British Columbia, where Mr. R. MacFarlane took a number of its nests in the vicinity of Stuart's Lake, in June, 1889, and the United States National Museum was favoured with several sets of eggs, nests, and the parents belonging to them, all of which proved to belong to this species. Some of these nests were apparently placed in upright crotches of willows, and others on horizontal limbs close to the trunks of small conifers, at no great distance from the ground. The earliest of six breeding records from this vicinity is June 4th; the latest, 22nd June. The nests differ somewhat from those previously described as far as the inner lining is concerned. In three of these the bottoms are covered with scales of buds of conifers, and the sides are lined with fine plant fibres, shreds of bark, plant down and bits of hypnum moss in fruit. In the set of four eggs taken by Mr. Dennis Gale, of Gold Hill, Colorado, every egg is marked, and the same is the case with a set of three eggs taken by Mr. MacFarlane. The number of eggs laid to a set is usually three or four. The shell is strong, close-grained, and without lustre. They vary in shape from short ovate to elongate ovate. The ground colour is pale creamy white, and the majority of the eggs are unspotted. In the small series before me there are, however, two sets which are spotted. The spots or specks on

all the specimens are exceedingly minute and are also few in number, well rounded in outline, and mostly distributed about the larger end of the egg; they are of a liver brown colour. The lighter lavender-coloured markings originally on Mr. Gale's eggs are barely visible now, having faded out." There are seven skins and but one set of eggs, taken at Trail, B.C., June 14th, 1902, by Mr. Spreadborough, in the Ottawa Museum!

It may be here remarked that one of the referred-to nests was found by Mr. Charles Ogden at Fort George, Fraser River, on 5th June, 1889. It contained four eggs, two of which he was considerate enough to leave therein for incubation by the parent birds.

474. PALLID HORNED LARK—*Otocoris alpestris arctica*
(Coues).

Under *O. alpestris leucolæma* (Coues) Major Bendire expresses himself as follows: "In his 'Notes on and List of Birds and Eggs Collected in Arctic America, 1861-1866,' Mr. R. MacFarlane says, in speaking of this species: 'Nine nests of this lark were received at Fort Anderson (established on Anderson River in 1861, and abandoned in 1866, approximate latitude 68° 30' north), a few of them from the Eskimos, and the others were collected by us in the 'Barrens,' and on the coast of Franklin Bay. The nests are usually composed of fine hay, neatly disposed, and lined with deer hair. Several of the parent birds were secured by snares placed thereon.' . . . The earliest breeding record I have, one from the lower Anderson River, in Arctic North America, is June 14th; the latest, from the same locality, is July 9th, 1864, and the breeding season appears to be at its height there during the first week in July, as all the nests taken by Mr. MacFarlane, excepting the single one just mentioned, were taken in this month. The nest belonging to the earliest set of eggs is now before me. It measures five inches in outer diameter by two and one-half inches in height. The

inner cup is two and one-half inches in width by one and one-quarter inches in depth. The nest, a well-built structure, is composed of rotten grass fibres, fine roots, and pieces of willow bark, and is warmly lined with similar materials, caribou hair and old cocoons. It was found by an Eskimo, and the female was snared on the nest, which contained three eggs when taken. The eggs of this species are mostly ovate in shape, less often elongate ovate. The shell is close-grained, rather strong, and shows little or no gloss. The ground colour is mostly drab gray, sometimes grayish white; in an occasional specimen a faint greenish tint is perceptible, which fades out in time. The entire surface of the egg is profusely blotched and sprinkled with different shades of pale brown. In some specimens the markings are bold and well defined; in others they are minute, giving the egg a pepper-and-salt appearance; and again they are almost confluent, causing a uniform neutral brownish appearance. In some specimens the markings are heavier and become confluent only about the larger axis of the egg, forming a wreath and leaving the ground colour on the smaller end of the egg plainly visible; in fact, there appears to be an endless variation in colour and markings as well as in size among these eggs, and scarcely any two sets are exactly alike."

There are but six skins and one set of three eggs, taken June 9th, 1900, at Artillery Lake, north-east of Great Slave Lake, by Bishop Lofthouse, of Kenora, in the Ottawa Museum!

484. ~~CANADA~~ JAY—*Perisoreus canadensis* (Linn.).

On 28th March, 1880, Chief Trader W. S. Simpson, then in charge of Green Lake post, English River district, found a nest on a stout tree in the midst of a dense thicket of pine brush, three feet only from the ground. It was composed of small twigs, dry grasses, mosses and feathers. It contained five fresh eggs. The parent was snared on the nest. Mr. Dalgleish received two eggs safely, but unfortunately the other three got broken on the way to Scotland.

On 18th April, 1885, a nest similarly constructed was discovered on a tree not far from Fort Providence, and it held four eggs; but having large embryos in them, all but one broke in trying to remove the contents. The parent was also snared on her nest. Bird and egg were forwarded to Dr. Bell. I will again quote from Major Bendire: "As the nesting season begins early, long before the snow has disappeared, therefore comparatively little is yet known about its breeding habits. Mr. R. MacFarlane found several nests and eggs of the Canada jay near Anderson River Fort, British North America, during the first week in May, and reports them tolerably numerous in the wooded country, even to its northern and eastern limits; but none were observed by him in the 'Barrens' west or east of the Wilmot Horton River or on the Arctic coast. The nests taken by him were placed in spruce or tamarac trees, often in the middle of a swamp, on branches close to the trunks and well concealed from view, and at heights of nine or ten feet. This jay, like the other members of this family, is silent and retiring during the season of nidification, and is then seldom seen or heard. In the more southern portion of its breeding range this begins in March, and sometimes later north. The nest is a bulky affair. One now before me, sent by Mr. MacFarlane, and collected by Mr. Henry McKay near the Hudson's Bay post at Pelican Narrows, in latitude 56° 30' north, contained four eggs when taken in March, 1891. It was found on a small spruce tree, near the trunk, about nine feet from the ground. It is composed of small twigs, plant fibres, willow bark, and quite a mass of the down and catkins of the cottonwood or aspen, this material constituting fully one-half of the nest. The inner cup is lined with finer material of the same kind and jays' feathers, which are easily recognized by their fluffy appearance. The nest is about eight inches wide by four inches deep; the inner cavity being about three inches in width by two and one-half in depth. The number of eggs laid, as far as known to me,

is three or four, although sets of five may sometimes be found. Their ground colour is generally pale grey, more rarely pearl grey. They are profusely flecked and spotted over the entire surface with different shades of brown, slate grey and lavender. Their shape is ovate; the shell is smooth, close-grained, and somewhat glossy." ⁴

In his breeding notes. ("Catalogue of Canadian Birds") Professor Macoun has omitted to mention the nests discovered at Fort Anderson. Mr. Raine believes that this jay is the earliest breeder of all Canadian birds. The Ottawa Museum contains five specimen skins, but no eggs, of this sociable and abundant Canada jay!

486a. NORTHERN RAVEN—*Corvus corax principalis* Ridgway.

Chief Trader Lockhart found a nest in a cleft of a poplar tree, twenty feet from the ground, at Fort Yukon, Alaska, on 29th May, 1862. This species is abundant at Fort Anderson and on the lower Lockhart and Anderson rivers, and although not seen by us there, it may possibly breed on the shores of the Polar Sea. All but one of the eight recorded nests were situated on tall trees, one of them, containing five eggs, at a height of about forty-five feet above the ground, and they were composed of dry willow sticks and twigs, and thickly lined with either deer hair or dry mosses, grasses, feathers, and more or less skin hair from other animals. The usual number of eggs was six, but seven and even eight were not uncommon. The excepted nest was built on the ledge of a rocky cliff on Lockhart River. On 11th June, 1863, an Eskimo brought me the egg of a pigeon hawk and the head of a raven, having, as he declared, shot it on the nest, which was placed on the topmost crotch of a pine tree. The latter, therefore, probably either ate the other eggs, shells and all, if there were any, or dispossessed the former bird in order to occupy it herself. Mr. Raine has a set of six eggs that was taken at Peel's River, latitude 67° 30' north, on 27th

April, 1900. The nest was a large structure of sticks and weeds lined with animal fur and built on top of a spruce tree.

Major Bendire states that "nidification begins occasionally in the latter part of April, more generally, however, about the middle of May, and sometimes not until the first week in June. From four to six eggs are usually laid to a set, and only one brood is raised in a season. The eggs do not differ materially from those of the American raven; but as a rule they are broader, more of a short ovate, and consequently somewhat larger."

The Dominion Museum at Ottawa holds three bird specimens, parts of four sets of eggs, and one perfect set of five eggs, including among them five eggs taken at Artillery Lake, north-east of Great Slave Lake, by Mr. Fairchild.

In the months of February and March, 1865, a raven became almost domesticated at Fort Anderson. At first it fed on garbage with a companion outside of the post, but shortly after it appeared alone, alighting within the stockade square, and would allow itself to be very closely approached by the inmates. Several young dogs soon became friendly and familiar therewith, and they would even frolic and gambol together. It was never known to attempt to injure the smallest of them, nor did they ever offer to annoy it. While this raven appeared to have full confidence in the people of the establishment, it kept at a careful distance from all Indian or Eskimo visitors. It, however, suddenly disappeared one day, having doubtless come to grief in some way unknown to us.

488. AMERICAN CROW—*Corvus brachyrhynchos* Brehm.

In previous Check Lists this species figured under *C. Americanus*, Audubon. This crow undoubtedly breeds at Pelican Narrows, where Mr. H. McKay shot an example early in June, 1891. A nest containing two eggs was found near Cumberland House about the same time. Both par-

ents were shot, and the specimens were forwarded to, and receipted at, Washington. The raven and crow both appear in Mr. B. R. Ross's List of Northern Birds, as do some other species noted herein. Major Bendire remarks that "the American, or common, crow is widely but irregularly distributed over a large portion of the northern continent, and is known to breed even within the Arctic Circle. Mr. R. MacFarlane obtained two sets of its eggs on the lower Anderson River, in about latitude $68^{\circ} 30'$ north. One set of five eggs was taken on 5th May, 1866, and contained large embryos when found, an unusually early breeding record for that region." Farther on he states that among a collection of eggs made by me in the vicinity of Fort St. James, British Columbia, is a set of four unmistakable crow's eggs, brought in by an Indian for those of Franklin's grouse on 2nd June, 1899, from a nest placed on the ground under the spreading limbs of a small spruce bush. The usual nesting place, however, is on a tall growing tree, amid fork branches, the nest being well constructed and composed of a large mass of dry twigs, roots and stalks outwardly, while the interior is lined with dried grasses, moss and feathers. I should imagine that 69° north, beyond which no trees grow, is the breeding limit of this crow. The Major also stated that incubation lasts about eighteen days, and both parents assist in this duty. The young are born blind and naked, and remain in the nest about three weeks. The old nests are resorted to for several seasons in succession where not molested. "Only one brood is raised in a season—if the first eggs are taken they usually lay a second set, but rarely in the same nest. Crows' eggs are rather handsome, and vary greatly in shape, size, colour and markings; the majority may be called ovate, but both short and rounded ovate and elliptical and elongated ovate are also found in good series. The ground colour varies from malachite and pale bluish green to olive green, and occasionally to an olive buff. The markings usually consist of irregularly shaped blotches and spots of different shades of browns and grays.

In some specimens these are large, and irregularly distributed over the egg, usually predominating about the larger end, leaving the ground colour clearly visible. In others again the markings are fine, profuse, and evenly distributed, giving the egg a uniform dark olive-green colour throughout. The shell is finely granulated, strong, and occasionally rather lustrous."

In the Dominion Museum at Ottawa there are twelve skins, including an albino taken near Port Hope, Ontario, and five sets of crows' eggs obtained at various Canadian points, but mainly from the North-West.

489. NORTH-WEST CROW—*Corvus caurinus* Baird.

On 7th June, 1889, an Indian brought in the parent bird and five eggs. The nest was placed on a tall Douglas pine at a distance of several miles from Fort St. James, and in construction and composition it resembled that of a common crow. The eggs contained such well-developed embryos that four of them got broken in the process of emptying them, and only one, with its mother, went forward to Washington, where it was receipted under this heading. Not abundant in New Caledonia district. Four or five eggs are usually laid to a set, and neither these nor the nests differ materially from those of the common crow; they average a trifle smaller, and the same description will answer for both. In the more northern portions of the range nidification usually begins in the latter part of May or the beginning of June. The Dominion Museum at Ottawa contains twelve bird specimens from British Columbia and but one set of four eggs, taken on the sandspit at Comox, Vancouver Island, on 3rd May, 1887, by the Rev. G. W. Taylor!

491. CLARKE'S NUTCRACKER—*Nucifraga columbianus*
(Wilson).

Although not referred to by Major Bendire, yet we hold his receipt for a male example of this bird, shot out of a large flock which flew near Fort St. James on 13th May,

1889. Rare in this quarter. The Indian says this is the first of the kind he has ever seen. Before skinning the measurements were 12.30, 7.50, and 4.50 inches. Later in the season another skin was obtained from Fort George, Fraser River. This species was formerly known as *Picicorvus columbianus*. "The nest of this species is an elaborate structure and well secured from strong winds, and is always built on trees, some fifteen to thirty feet above the ground. The eggs are two and three in number. Incubation lasts about sixteen or seventeen days, and both parents assist, while they are equally devoted in attention to the young. They follow them about for some time, and when able to provide for themselves all of these birds suddenly disappear from their breeding grounds. They nest very early, but only one brood seems to be raised in a season. The eggs of this nutcracker are ovate and elongate ovate in shape. The ground colour is usually pale gray green, occasionally a clearer pale green. They are rather sparingly flecked, spotted and blotched with minute markings of different shades of brown, gray and pale lavender, usually heaviest about the larger end of the egg. In others they are more evenly distributed over the entire egg, but never thick enough to hide the ground colour. In some the lower half of the egg is almost unspotted. The shells of these eggs are close grained, smooth, rather thin considering their size, and slightly glossy."

The Dominion Museum at Ottawa contains eight specimens from British Columbia, all by Mr. Spreadborough. There are no eggs in the collection!

497. YELLOW-HEADED BLACKBIRD—*Xanthocephalus xanthocephalus* (Bonap.).

Major Bendire states, in his frequently-referred-to "Life Histories of North American Birds," that "Mr. R. MacFarlane forwarded a nest and set of eggs from Cumberland House, Saskatchewan, and a skin from the Hudson's Bay

post at Lac du Brochêt, situated at the north-eastern extremity of Reindeer Lake, in about latitude $58^{\circ} 30'$ north, and longitude 101° west of Greenwich. This locality marks, as far as is yet known, the 'most northern authenticated point of its range.' In his List of Birds, however, Chief Trader B. R. Röss remarks: "Though no specimen of this bird has been procured, I once observed it at Fort Simpson, Mackenzie River, latitude $61^{\circ} 51'$ north."

Major Bendire states that "incubation lasts about fourteen days, and in sixteen more the young leave the nest. The eggs vary in shape from ovate to elliptical and elongate ovate; the shell is finely granulated, strong and rather glossy. The ground colour varies from grayish white to pale greenish white, and this is profusely and pretty evenly blotched and speckled over the entire surface with different shades of browns, cinnamon, rufous, ecru, drab, and pearl gray. The markings are usually heaviest about the larger end of the egg, and sometimes a specimen is met with which shows a few fine hair-like tracings like those found on the eggs of the oriole."

In the Ottawa Canadian Museum there are four specimens and four sets of eggs taken at Crane Lake, Saskatchewan Province, on June 8th, 1894. There were many other nests containing young or partly incubated eggs.

498. RED-WINGED BLACKBIRD—*Agelaius phœniceus* (Linn.).

The skin of a male obtained at Fort Resolution, Great Slave Lake, summer 1880, was thereafter forwarded to Mr. Dalglish. A female example shot at Fond du Lac, Athabasca, was sent to Dr. Bell in 1885. The species no doubt breeds at both places. Messrs. Kennicott and Lockhart found nests at the former point over forty years ago. Early in June, 1890, Mrs. W. C. King secured a nest holding four eggs near Moose Lake, Cumberland. Both parents were shot. About the same time Mr. E. Haight discovered a nest at the Pas Mountain containing four eggs, and shot

the male. A third nest was taken at Cumberland House. In all probability it breeds at Pelican Narrows and elsewhere throughout the district. It nests on willow and other bush trees, and they are composed of coarse grasses and reeds, lined with finer grasses and deer hair.

Bendire states that "incubation lasts about two weeks, and the young are able to leave the nest in about sixteen days. As soon as they are large enough to provide for themselves they gather into small companies and roam all over the country. In August and September they congregate in large flocks, containing many thousands, and at which time they frequently do considerable damage in certain favourite resorts. The eggs are mostly ovate in shape; the shell is strong, finely granulated, and moderately glossy. The ground colour is usually pale bluish green, and this is occasionally more or less clouded with a pale smooth-gray suffusion. They are spotted, blotched, marbled, and streaked, mostly about the larger end, with different shades of black, brown, drab, and heliotrope purple, presenting great variation in the amount, character, and style of markings. Occasionally an entirely unspotted egg is found."

In the Dominion Museum at Ottawa there are nine specimens and but one set of five eggs, taken on Cherry Island, Lake Winnipeg, on 15th June, 1889!

509. RUSTY BLACKBIRD—*Euphagus carolinus* (Müll.).

We found this bird fairly numerous in the neighbourhood of Fort Anderson, but stragglers were frequently observed by us as far as the eastern limits of the forest, as well as near the partially-wooded "crossing" on the Wilmot Horton River, in about latitude 69° north and longitude 125° west. The twenty-five nests discovered in these several localities were built on trees, at a height of from five to eight feet from the ground. Five eggs was the maximum number in any one nest, while the latter was always substantially

constructed of earth, moss and grass, small dry twigs and branches, lined with finer grasses, and a sprinkling of feathers and deer hair. The parents generally manifested great uneasiness when their nests were approached, and they would often fly from tree to tree in order to attract us away from the spot. Incubation lasts about two weeks, and in two more the young are able to leave the nest. They are mouse-coloured at first, and are carefully attended to by both parents, who are passionately devoted to them. Bendire remarks that this collection of eggs, together with those gathered by Mr. James Lockhart on the Yukon, near the mouth of the Porcupine River, Alaska, are in the U. S. National Museum at Washington. "The eggs of this species are mostly ovate in shape. The shell is strong, finely granulated and slightly glossy. The ground colour is a light bluish green, which fades somewhat with age; this is blotched and spotted more or less profusely, and generally heaviest about the larger end of the egg, with different shades of chocolate and chestnut brown and lighter shades of ecru, drab, and pearl-gray. The peculiar scrawls so often met with among the eggs of our blackbirds are rarely seen on these eggs, which are readily distinguishable from those of the other species."

The Canadian Museum at Ottawa contains nine birdskins and but one set of five eggs, taken at Davidson's Lake, Hants County, N.S., by "Robbie" Tufts, on 12th June, 1901!

510. BREWER'S BLACKBIRD—*Euphagus cyanocephalus*
Wagler.

We did not observe this species or the rusty blackbird in New Caledonia or Cumberland districts. Mr. B. R. Ross says Brewer's blackbird was not rare in his time at Fort Simpson. This species is well represented in the U. S. National Museum at Washington, and also fairly so in that of the Dominion collection at Ottawa.

511b. BRONZED GRACKLE—*Quiscalus quiscula æneus*
Ridgway.

"In a typewritten list of birds and eggs received from Mr. R. MacFarlane in 1890 there appears one set of five eggs of this species, collected at, and forwarded from, Cumberland House. As no parent came to hand, I failed to identify them." Bendire, however, states that eggs were taken by Mr. J. Lockhart at Fort Resolution, Great Slave Lake, on May 17th, 1863. According to Mr. Ross they were rare at Fort Simpson.

Bendire remarks that "where coniferous trees are obtainable, preference seems to be given to them; but willows are also used for building, while there is not much difference in their nests compared with those of the purple and Florida grackles, which vary in composition according to locality, and their nesting habits and eggs are also similar. The number of eggs to a set varies from four to six, rarely seven; sets of five are most often found, and six are not unusual."

The Dominion Museum at Ottawa holds six birdskins and four sets of eggs, taken in several sections of eastern and western Canada.

515. PINE GROSBEAK—*Pinicola enucleator leucura* Müller.

In the spring of 1861 an Indian discovered a nest of this species some sixty miles south of Fort Anderson. It was built in a spruce tree, but unfortunately while descending therewith he fell and destroyed both nest and four eggs, and although we frequently observed some birds in the vicinity of the post and elsewhere, we never succeeded in finding another nest, despite many efforts.

Major Bendire's second volume of his valuable and interesting "Life Histories of North American Birds" comes to an end with the boat-tailed grackle, *Quiscalus major*, now known as No. 513, *Megasquiscalus major* Vieillot, of the revised A. O. U. Check List, and it will therefore be impossible

to furnish from now on to the end of the paper series in hand quite as full confirmatory details under each numbered species as previously. Professor Macoun's "Catalogue of Canadian Birds" will, however, prove of much assistance in this connection. Mr. B. R. Ross states that this species is not rare on the Mackenzie River to Fort Good Hope.

The Dominion Museum at Ottawa holds nine skins, but not a single egg, of this fine pine grosbeak!

517. PURPLE FINCH—*Carpodacus purpureus* (Gmelin).

A supposed example of the species was shot on the lower Athabasca River in the spring of 1885, which was later forwarded to Dr. Bell. In 1891 Professor Nutting, of Iowa University, obtained a specimen (male) at Grand Rapids, Cumberland district. Latitude $56^{\circ} 15'$ is apparently the most northern range of this bird, where Mr. Spreadborough observed it in June, 1903. The Dominion Museum at Ottawa possesses "twelve skin specimens and four sets of eggs thereof, one set of four having been taken from a nest situated in a small spruce, about eight feet from the ground. Outside made of grass and small twigs lined with cow's hair."

517a. CALIFORNIA PURPLE FINCH—*Carpodacus purpureus californicus* Baird.

On 3rd June, 1889, a Stuart Lake Indian found a nest of this finch on a low bush containing four fresh eggs. He shot the mother. On the next day another hunter brought us part of a female with a nest holding five eggs, one of which Major Bendire identified as belonging to the western vesper sparrow (*Pooecetes gramineus confinis*). On the 26th June a third Indian turned up with the nest and three broken eggs emptied by him. He also had a bird therewith which he shot in the immediate vicinity.

Professor Macoun states that this sub-species is fairly common in Vancouver Island and on the coast of British Columbia, where it undoubtedly breeds. It has been

observed feeding on the seeds of the crab tree at Chilliwack and Huntingdon in the autumn of 1901.

The Ottawa Museum contains twelve specimens, but no eggs, of this finch!

521. AMERICAN CROSSBILL—*Loxia curvirostra minor*
(Brehm).

Several birds resembling the published description of this crossbill were seen at Fort Anderson, fired at and missed, on 20th June, 1862, and afterwards. The closest search, however, failed to discover any nests. Believed to breed in New Caledonia. Fairly numerous on both sides of the Rocky Mountains, while they have been met with as far north as Sitka, Alaska. Mr. Raine, of Toronto, states that he has a "set of four eggs of this species, collected by Mr. L. Dicks, of Cartwright, Labrador, April 20th, 1895. The nest was built in the top of a cedar and was composed externally of twigs and roots and the interior lined with animal fur and feathers. The eggs are greenish white, spotted chiefly at the larger end with dark brown and gray, and average in size 0.75 by 0.58 inches."

There are fourteen skins, but no eggs, in the Dominion Museum at Ottawa!

522. WHITE-WINGED CROSSBILL—*Loxia leucoptera* Gmelin.

A male and a female specimen were obtained during our residence on the Anderson River. The Indians assured us that they had occasionally observed birds of both species, especially *L. leucoptera*, in the country to the south. Mr. Ross states that they are rare at Fort Rae. General on both sides of the Rockies, and are known to breed on the Yukon, and no doubt do so on the Anderson and Mackenzie rivers as far north as 68° latitude. I will again quote from Mr. Raine: "I have a set of four eggs, taken at Sandwich Bay, Labrador, April 9th, 1894, by L. Dicks. The nest is made of fine roots and twigs lined with moss and animal fur, and the four eggs are pale bluish white, spotted at the

larger ends with brown of various shades, black and lilac gray. The eggs of the two species of crossbill are seldom obtained, for, like the Canada jay, they have eggs while the snow is on the ground, very early in the spring, and at a time when it is difficult to get into the woods on account of the snow."

There is not a single egg, and but seven birdskins, in the Dominion Museum at Ottawa!

527a. HOARY REDPOLL—*Acanthis hornemanni exilipes*
(Coues).

Although not mentioned in Professor Macoun's "Catalogue of Canadian Birds," yet we found this species quite common in the valley of the Anderson, where they build their nests on low bushes of scrub pine and willow, while the eggs are usually four or five in number, and in which locality also it is believed to be one of the "wintering birds." It does not, however, appear that any specimens were secured by us in the districts of Athabasca, Cumberland, and New Caledonia. When stationed at Peel's River, in 1898, the Rev. (now Bishop of Yukon) I. O. Stringer collected six nests with sets of eggs of this species. The nests are beautiful structures of fine twigs and roots felted together with vegetable down and snugly lined with down and feathers. One nest, taken July 19th, 1898, was built in a willow, only two feet from the ground, and contained four eggs. Another nest was built in a small shrub, less than one foot from the ground, and contained five eggs.

The Ottawa Museum has two specimens, but a large series of eggs, the former taken at Indian Head in 1892, and all of the latter in Labrador and Ungava in 1895, 1896, and 1897.

528. REDPOLL—*Acanthis linaria* (Linn.).

Bishop Stringer also found several nests near the Mackenzie delta, built in willows, two or three feet from the ground, and containing four and five eggs each. Mr. Raine holds

three of the nests, and they are beautifully and compactly made, externally of fine roots and grass, and the inside felted with down and feathers. In course of our five seasons' residence at Fort Anderson, where this species was common, we received and exported to Washington about eighty nests of both (Nos. 527 and 528), while we found them more abundant in 1864 than during any other summer.

There are eleven specimens and but one set of four eggs, taken at Great Whale River, Hudson Bay, May, 1899, by Mr. A. P. Low, in the Dominion Museum at Ottawa!

533. SISKIN—*Spinus pinus* (Linn.).

At Fort St. James, Stuart's Lake, B.C., on 22nd June, 1889, a nest holding three perfectly fresh eggs was found on a willow bush. The mother was shot, and a part thereof together with the eggs were forwarded to Washington, where the specimens were identified as belonging to this species.

Mr. Raine states that he has several nests with sets of eggs that were taken at Hamilton Inlet, Labrador, during the summers of 1895 to 1898. One of these nests is a pretty specimen of bird architecture, and made externally of fine twigs and roots held together by moss, with the inside lined with feathers. It was found June 17th, 1898, in a spruce tree, ten feet from the ground, and contained five greenish-white eggs spotted with brown.

The Museum at Ottawa possesses eleven specimens and four sets of eggs of this species, all taken in Eastern Canada in 1894.

534. SNOWFLAKE—*Passerina nivalis* (Linn.).

The only authenticated nest and eggs (No. 10,433) in the Smithsonian Institution at Washington as late as 1874 was that discovered by us in a small hole large enough to admit of the female, and it was placed at a distance of nearly two feet from the entrance in a sandbank along the shores of Franklin Bay. "The nest is deeply saucer-shaped, and

composed of wiry grass stems, with a few feathers in the lining. External diameter 3.75 inches, internal about 3, depth 2.50 externally and 1.50 inches internally. The eggs, five in number, are of a dull white, with perhaps a faint bluish cast, sprinkled and spattered with a dilute yellowish-rufous, the markings most numerous towards the larger end. They measure 0.95 of an inch in length by 0.64 in breadth." The parent bird was snared on the nest. In 1865 we met with a number of the snowflake on the same sea coast, but failed to find another nest. Mr. W. Raine states that on June 25th, 1901, a snow bunting built its nest in a hole under the eave of Mr. (Bishop) Stringer's house on Herschell Island, in the Arctic Ocean, west of the Mackenzie Bay. He found another nest and eggs on the ground in a hollow at the side of a hummock on June 18th. When migrating to and from the far north, it is common enough at times on the Mackenzie, the Athabasca, in Cumberland, as well as in portions of British Columbia.

There are sixteen specimens, but not a single snowflake egg, in the Ottawa Museum!

536. LAPLAND LONGSPUR—*Calcarius lapponicus* (Linn.).

Mr. Raine has a dozen nests with sets of eggs that were collected at Herschell Island by Mr. (now Bishop) Stringer and Mr. Young. The nests are made of dried grass well lined with feathers, and are always built on the ground, in the shelter of a tuft of grass or sod, and contains five or six eggs. The eggs are laid in the middle of June, and the female is a close sitter, most of the nests being found by flushing the bird off the nest." Altogether eighty-three nests of this species were obtained by us in the Barren Grounds, as well as on the shores of Franklin Bay. One from the latter, found on the 27th June, 1864, was, like all of the others, built on the ground, and is deeply saucer-shaped, measuring 3.75 inches external and 2.30 inches internal diameter; the depth 2.75 inches exteriorly and 1.50 interiorly. It is composed

of coarse wiry grass stems and softly lined with feathers of *Lagopus*. The eggs, five in number, have the ground colour light umber drab, faintly blotched with deeper livid slate and with a few straggling black lines, much as in certain *Ictemidæ* and in *Chondestes*. They measured 0.86 of an inch in length by 0.63 in breadth. In 1826 the crops of several birds killed at Fort Franklin, Great Bear Lake, latitude $65^{\circ} 30'$ north, in the beginning of May, were filled with the seeds of *Arctostaphylos alpina*.

The Ottawa Museum holds twenty-one specimens and six sets of eggs, including one of five taken by Captain A. Murray, in 1896, in Repulse Bay, Hudson Bay.

537. SMITH'S LONGSPUR—*Calcarius pictus* (Swains.).

A male bird shot near Fort Providence in April, 1894, was forwarded to Dr. Bell. This species has been taken by Mr. Strachan Jones at Fort Yukon, but there is no other record of its having been taken in Alaska. It also breeds abundantly on the slopes of the Caribou Hills, eighty miles south of the Arctic coast, west of the Mackenzie River delta. Here Bishop Stringer found several nests in June, 1897. They were built on the ground in grassy hummocks, and contained from four to six eggs in each, which somewhat resemble eggs of the Lapland longspur, except that they have a paler ground colour. Ten nests before Mr. Raine were all made of dry grass and well lined with feathers. We, however, found this longspur very abundant in the country to the eastward of Fort Anderson, in the Barren Grounds, and in the lower Anderson valley. These several localities yielded an aggregate of one hundred and fifty nests. They were all on the ground, and usually in open spaces or plains, but some were also placed in the vicinity of trees. The average number of eggs was four, occasionally three and as many as five. The nests were constructed of fine dry grasses, carefully arranged and lined with down, feathers or finer material similar to those of the outer por-

tions. In a few there were no feathers, in others feathers in varying proportions, and in several the down and feathers composed the chief portion of the nest, with only a few leaves and a little hay as a base for the nest. Mr. Ross has all three snowbirds in his List, while there are only three skins, and not a single egg, of this species in the Dominion Museum at Ottawa!

540. VESPER SPARROW—*Poocætes gramineus* (Gmelin).

On 26th June, 1864, we found a nest of this species containing six eggs in a sparsely wooded tract of country east of Fort Anderson. The female was snared on her nest. The bird, as well as the nest and eggs, closely agreed with the description in Baird, Brewer, and Ridgway's "History of North American Birds." Professor Macoun has, however, referred to those under *P. gramineus confinis* Baird in his "Catalogue of Canadian Birds." Mr. Macoun states that this is a common prairie species, and that a nest taken on 31st May, 1895, contained three fresh eggs. It was found on the sloping side of a coulee, placed on the ground under a tuft of grass. It was built chiefly of fine material, the base being leaves of grass, the coarser at the bottom. A few hairs were worked in at the last. Another nest, identical in every way, was taken 19th June, in a clump of *Potentilla gracilis* at the edge of a ravine.

The Ottawa Museum possesses twenty-seven specimens and two sets of four eggs each, taken at Crane Lake, Saskatchewan, on 11th June, 1894, by Professor Macoun, and another set of four received from Mr. Raine, which were found at Fort Saskatchewan, Alberta, May 7th, 1898.

542a. SAVANNA SPARROW—*Passerculus sandwichensis savanna* (Wilson).

Numerous in the Anderson River valley, and although frequenting marshes, it generally makes its nest on dry ground, similar to that described under No. 542b. The

number of eggs varied between four and six. The Professor (Macoun) has not referred to those collected by us in that quarter.

There are four specimens from Ottawa, taken in October, 1890, and two sets of eggs taken on Toronto Island in 1894 and 1896, in the National Museum at Ottawa.

542b. WESTERN SAVANNA SPARROW—*Passerculus sandwichensis alaudinus* (Bonap.).

On 12th June, 1889, a nest holding four eggs was found at Fort St. James, B.C., but their contents were in such a developed condition that all of them got broken in attempting to empty them. It was found in the shade of a clod of turf in our barley field, and the mother bird was snared thereon. Two weeks later another nest was discovered on a low willow bush, and the contents of its four eggs were somewhat similar. The parent was shot, and both skins and nests were forwarded to Washington. In the early sixties of the last century we found this sparrow very abundant in marshy and sparsely wooded sections near Fort Anderson and on the lower river of that name, seeing that upwards of two hundred nests with eggs were collected in that region. They were all placed on the ground, and were composed of dry stems of grasses lined with finer materials of the same. Some of the nests were lined with a few feathers and deer hair. The number of eggs in a nest was four or five, while the colour of those of both sub-species are greenish-white, heavily blotched and spotted with light brown and lilac, and the size about 0.74 by 0.54 inches.

The Dominion Museum at Ottawa contains forty-seven specimens and four sets of eggs—the former from Saskatchewan, Alberta, and British Columbia, and the latter from the two former Provinces.

554a. GAMBEL'S SPARROW—*Zonotrichia leucophrys gambelii* (Nuttal).

In 1881 Mr. Dalglish became the recipient of several birds, eggs and nests of this species, which had been col-

lected the previous spring at Forts Rae, Resolution, and Chipewyan. In 1886 he further received a few similar specimens from the two last-mentioned points. A skin, nest and set of eggs obtained at Fort Providence were forwarded to Dr. Bell. On 14th June, 1889, a nest holding four greatly developed eggs was found on a tree near Fort St. James, B.C. This sparrow breeds in large numbers in the wooded sections of the valley of the Anderson, where, however, the nests were nearly always on the ground, placed amid tufts or tussocks of grass, clumps of Labrador tea (*Ledum palustre*), and on stunted willows. They were composed of fine hay and lined with deer hair, occasionally mixed with a few feathers. Several were made entirely of the finer grasses. The usual number of eggs was four, but a lot contained as many as five and six. Upwards of one hundred nests were collected in the region referred to. At Peel's River, Arctic America, on June 2nd, 1898, the Rev. E. C. Whittaker found a nest with four eggs built in a patch of moss on the ground. In one of the first Check Lists issued by the American Ornithologists' Union, about twenty years ago, this sparrow, previously known under *Zonotrichia gambelii*, was renamed *Z. leucophrys intermedia*, while it appears by the latest revised Check List to hand as *Z. leucophrys gambelii*.

The Ottawa Museum contains twenty-seven specimens (but not a solitary egg!) from the Provinces of Saskatchewan, Alberta and British Columbia.

558. WHITE-THROATED SPARROW—*Zonotrichia albicollis*
(Gmelin).

At Moose Lake, Cumberland House, and Pelican Narrows a few examples (birds, nests and eggs) were obtained during the seasons of 1890 and 1891. Common at Grand Rapids and elsewhere in Cumberland District. We never observed any at Fort Anderson, but Mr. Ross says they are rare at Fort Simpson, while Sir John Richardson believed

that they bred up to latitude 66° north. Nests and eggs resemble those of No. 554.

There are ten specimens and but one set of four eggs, taken at Wolfville, N.S., 24th June, 1894, in the National Museum at Ottawa!

559. TREE SPARROW—*Spizella monticola* (Gmelin).

During the 1880 season of nidification, examples of this numerous and widely distributed sparrow were taken at Forts Chipewyan, Rae, and Resolution, and the same (parents, nests, and eggs) were duly forwarded to Mr. Dalgleish, Edinburgh, Scotland. In 1885 a couple of similar specimens were sent to him from Fond du Lac, Athabasca. Mr. E. Preble first met this bird at York Factory, Hudson Bay, on 12th July, 1900. He found them abundant at Fort Churchill, and many were also noted on the "Barren Grounds" fifty miles south of Cape Eskimo early in August, while several were seen at Duck Point, Playgreen Lake, near Norway House, on their return trip to Winnipeg. Nesting similar to that of No. 559a. It is also presumed that the eggs greatly resemble each other, while the Dominion Museum contains fifteen birdskins but not a single egg of either!

559a. WESTERN TREE SPARROW—*Spizella monticola ochracea* Brewster.

This is probably the most abundant sparrow found breeding in the Anderson River region, as is evidenced by the number of nests—two hundred and sixteen—secured. They were almost invariably composed of hay or dry-grasses, intermixed with a little stringy bark and lined with feathers. Most of them were found on the ground, and the others were built on dwarf willow, at a height of from one to four feet. Four and five eggs, occasionally as many as six and seven, appeared to be the complement. The Rev. C. E. Whittaker and the Rev. (now Bishop) Stringer also discovered nests

with eggs at Peel's River and near the delta of the Mackenzie in 1899 and 1900. Nests were situated on many knolls on the ground, and they contained four and five eggs each. They were, in composition, similar to those herein described. For many years this sub-species figured under the preceding No. 559 species. According to Mr. Grinnell the ground colour of the egg is very pale blue. A set of six in his possession is quite uniformly and thickly spotted with liver brown and vinaceous tints. One egg of a set of five is like them, but the others are wreathed at the large ends with confluent markings of the same colours, while the rest of the surface is finely dotted and blurred with a pale brown tint so as to merely obscure the ground colour.

The Ottawa Museum holds fifteen specimens, and no eggs, of this sparrow!

560. CHIPPING SPARROW—*Spizella socialis* Wilson.

We did not observe any sparrows of this species on the Anderson, but from Mr. Dalglish's List for season 1880, he received well-identified examples from Forts Rae, Resolution and Chipewyan. There were one or two from each of these points—birds, nests and eggs. The nests were found on low willow or pine scrub bushes, and were constructed of fine grasses and some deer hair, and the number of eggs was four and five. In 1890 we forwarded seventy-two eggs of the chipping sparrow to Washington from the Hudson's Bay posts of Cumberland House, Moose Lake, Reindeer Lake and Grand Rapids. Mrs. W. C. King, Messrs. H. Belanger, Joseph Hourston, and Angus McLean were the finders, while Mr. H. McKay, of Pelican Narrows, procured two nests, with four and five eggs, the following season. He states that they are abundant and among the first breeding birds arriving at that place. Mr. Ross also says, "abundant on the Upper Mackenzie to and at Fort Simpson." Has been taken at Fort Yukon. The nest is usually composed of dried grass lined with hair, placed on low bushes. Mr. W. H.

Moore refers to some built on small spruce and apple trees, holding from three to five eggs each, which were found to have been broken. At last one morning, when sitting in view of a nest on an apple tree, he saw a fine male of this species deliberately pick a hole in the shell and drink its contents. He then surmised that it was this particular bird that was doing all the mischief. The eggs are in colour bluish, speckled with blackish brown and purple.

The Dominion Museum at Ottawa contains seven specimens and two sets of four eggs each, taken there on 24th and 31st May, 1899, by Mr. A. L. Garneau.

560a. WESTERN CHIPPING SPARROW—*Spizella socialis arizonæ* Coues.

In the month of June, 1889, at and not far from Fort St. James, Stuart's Lake, B.C., we secured about a dozen nests of this species. With but one exception (on the ground) they were all built on low bushes, and in make, and the eggs also in colour, resembled those of No. 560. Some of the parents were shot and the others snared, while the egg contents held from well to largely developed embryos. One of the last nests, found on 28th June, contained two freshly laid eggs. An animal of some kind may have stolen the first set.

The National Museum at Ottawa holds seventeen skins but no eggs of this sparrow!

567. SLATE-COLOURED JUNCO—*Junco hyemalis* (Linn.).

At Fond du Lac, Athabasca, on 1st June, 1885, a nest holding five eggs was taken, and the mother parent was snared thereon. Both were duly sent to Mr. Dalglish. In the early sixties of the last century we secured several birds, eggs and nests at Fort Anderson, where they bred in the forest and to the border of the "Barrens." The nests were always placed on the ground and were made of fine grasses lined with deer hair. Four and five eggs were the

usual number found in them. Fairly numerous in that region. On Mr. Ross's List. The colour of the eggs is greenish-white, spotted and blotched with reddish brown.

There are sixteen Ottawa Museum specimens, and but one set of three eggs, taken near that city, in May, 1894!

567. OREGON JUNCO—*Junco hyemalis oregonus* (Towns.).

Early in June, 1880, a nest containing four eggs was found on the ground near Fort Rae, Great Slave Lake. The parent was snared, and the specimens were forwarded to Mr. Dalglish, who identified her as being an Oregon junco. In composition the nest was similar to that of the preceding junco. Mr. Ross states that it extends to Fort Simpson, Mackenzie River, where it is rare. Present in New Caledonia. One nest with two eggs was found by Mr. C. Ogden, at Fort George, 10th June, 1889.

Nelson states that the occurrence of this sub-species in Alaska was first made known by the capture of eight specimens by Bischoff at Sitka, and one later by Bean at Unalaska, in 1879. Said to be abundant in British Columbia. Bishop mentions having taken a female and four fresh eggs at Skagway on 31st May. The nest, composed of dry grass lined with short white hairs, was sunk in the ground and concealed by dead weeds under a birch, only about thirty feet above the water of Lynn Canal.

The Dominion Museum at Ottawa has eight skin specimens and but one set of five eggs, taken near Victoria, Vancouver Island, in May, 1890, by the Rev. G. Taylor!

567b. SHUFELDT'S JUNCO—*Junco hyemalis shufeldti* (Coale).

On the 16th of May, 1889, a nest holding but two eggs was discovered under a fallen tree stump, not very far from Fort St. James. Eggs rather fresh. The parents were seen, and both of them were shot close by. Four weeks later another nest, with five eggs, was found on a low bush.

Contents of eggs only slightly changed. Both parents were shot, and the U. S. National Museum at Washington received all of them. Apparently accidental in the Rocky Mountains and at Edmonton, Alberta, but common from the eastern boundary to Victoria, B.C. Nests are constructed of dry grass and weeds lined with hair, etc., placed on the ground or on a very low bush. Eggs resemble those of the true junco.

In the Dominion Museum Collection there are three skins from Edmonton and twenty-six from various points in British Columbia, all taken by Mr. W. Spreadborough. There is not even one egg on hand, although he appears to have found a nest on May 25th, 1902, in the bank of an old prospect hole, with four fresh eggs!

581. SONG SPARROW—*Melospiza cinerea melodia* (Wilson).

Early in June, 1890, Mrs. King, of Moose Lake, obtained from an Indian a nest of this species, composed of dry grasses lined with hair and containing four eggs. The parent was shot. About the same time a female was snared on the nest, which held therein three eggs, near Cumberland House. In June, 1891, Mr. H. McKay, of Pelican Narrows, found two nests with four eggs each—one of them was on the ground and the other on a low bush. This sparrow "whistles well," according to Mr. McKay. Not uncommon along the Saskatchewan and Peace rivers. Mr. J. M. Macoun reports them as very common on Methye Lake, Portage la Loche, English River District. In colour the eggs are greenish or grayish-white, spotted with brown, chocolate and lavender.

The Ottawa Museum holds twenty-seven specimens, and six sets of eggs, including one from Edmonton, Alberta, taken by Mr. Spreadborough in 1897, and one also at Indian Head, in 1892.

583. LINCOLN'S SPARROW—*Melospiza lincolnii* (Audubon).

In the neighbourhood of Fort St. James, on 27th June, 1889, two nests, each containing two eggs, were found—one of them on a low scrub bush, the other on the ground, and the parents were shot. The eggs were nearly fresh. Early in June, 1891, Mr. McKay also took a nest with five eggs near Pelican Narrows, where it is among the very first spring bird arrivals. Common in British Columbia and at old Fort Yukon, where upwards of forty years ago Mr. R. Kennicott and Chief Trader Lockhart obtained some specimens. Mr. Ross has also noted them in his Mackenzie River List.

The Ottawa Museum contains twenty-four specimens, and but one set of five eggs, taken at Edmonton, Alberta, on 1st June, 1897, by Mr. Spreadborough!

584. SWAMP SPARROW—*Melospiza georgiana* (Latham).

Mr. Ross gives Fort Resolution, Great Slave Lake, as its most northern breeding range. I do not remember if I ever met therewith anywhere. Common at York Factory, Hudson Bay, and a summer resident of Manitoba, and thence to Lesser Slave Lake and the Athabasca Landing. Nests in marshy tracts of country, and the nest is said to be in the main composed of coarse grasses lined with some of a finer quality and placed in a tussock of grass on a very low bush. The usual number of eggs is from four to six, and Garneau states that they are grayish-white speckled with reddish-brown. Rev. C. J. Young, however, says "the eggs are readily distinguished from those of the song sparrow, being spotted and speckled with umber instead of brick-red."

The Dominion Museum at Ottawa contains but six specimens and two sets of eggs! —

585. FOX SPARROW—*Passerella iliaca* (Merr.).

Although the brief field-notes made by me at Fort Chipewyan, New Caledonia and Cumberland do not, strange

to say, make any reference whatever to this common and widely distributed sparrow, yet I feel satisfied that it breeds throughout those immense sections of north-western Canada, while it is probably replaced in Alaska and British Columbia by one or more of its sub-species. In Arctic America, however, we found it fairly abundant along both banks of the Anderson River, and several nests were also discovered in the Barren Grounds. Most of the nests found by us were built on trees, and they resembled those of *Turdus alicia*; but several of those obtained on the ground were composed of coarse dry grasses, lined with some of a finer quality, a few deer hair and a sprinkling of fresh moss. Four or five eggs formed the full set. I would here quote from Professor Macoun's interesting work the following appreciatory note by Mr. W. Raine, of Toronto: "I have several sets of eggs from the Mackenzie delta. On June 10th, 1900, a nest and three eggs were found by Mr. C. E. Whittaker at Peel's River; the nest was built in the root of a shrub near the ground. On June 1st, 1900, another nest and four eggs were found at Peel's River by the Rev. (now Bishop) I. O. Stringer, through whose kindness I have been able to describe the nests and eggs of many Arctic birds found by this gentleman in the far north during his eight years' sojourn amongst the Eskimos of that region, and it is to be regretted that owing to failing health Mr. Stringer had to abandon his work amongst the natives of the Arctic coast, as he has proved himself to be a keen observer and careful, painstaking ornithologist. Many of the specimens collected by Mr. Stringer were taken while he was travelling up and down the Mackenzie delta, or along the Arctic coast, with bands of Eskimos. Often at night, when the natives had laid down to sleep, Mr. Stringer had to skin the birds and blow the eggs and make his notes, and by the time this work was done the Eskimos were astir again and making ready to proceed on their journey." Both Richardson and Ross mention this handsome and interesting

species as a migrant on the Mackenzie and up to 68° north latitude.

The Dominion Museum at Ottawa contains but six specimens, including one taken there by Professor Macoun, and one set of five eggs found at Nachvak, Labrador, by Mr. R. Guay, in June, 1897!

607. LOUISIANA TANAGER—*Piranga ludoviciana* (Wilson).

This species has been met with at Fort McMurray, on the Athabasca River, from Lesser Slave River to the Peace, and in British Columbia. It does not appear in Mr. Ross's List of Mackenzie River Birds. Mr. G. F. Dippie and Mr. W. Raine have both received eggs and skins of this bird from Red Deer, Alberta. On June 3rd, 1898, Mr. Wenman found a nest on the Red Deer River. It contained four eggs, and was built in a poplar, five feet from the ground. Its eggs resemble those of the scarlet tanager, and they are of a dull greenish blue spotted with lilac and brown.

There are no eggs, but twenty-seven specimen skins, in the Ottawa Museum!

612. CLIFF SWALLOW—*Petrochelidon lunifrons* (Say).

On 15th June, 1889, Mr. Alexander C. Murray, of Fort St. James, discovered a nest containing four eggs built against the side of a beam or rafter of the post barn. Both parents were seen and the female was shot. Contents of eggs perfectly fresh. They annually breed, in fairly large numbers, in suitable localities along river and lake banks in New Caledonia, Northern British Columbia. In 1856 about one hundred and fifty nests of this species were for the first time built under the eaves of the three principal buildings of Fort Good Hope, Mackenzie River; but as many of the young were destroyed by Indian boys, only one hundred nests were constructed at the same place the following season. In 1866 a cliff swallow was observed closely examining the

eaves of the houses at Fort Anderson, but probably not finding them suitable, or in consequence of having been rudely disturbed by an Indian urchin throwing stones thereat, it flew away and never returned. They, however, breed abundantly along the banks of the Lockhart and Anderson rivers. Richardson and Ross speak of their abundance and range in the Mackenzie River region. They are doubtless the most abundant species generally distributed and characteristic of the swallow family throughout north-western Canada. Their nests are built of mud, and are shaped like a bottle with the neck downward, lined with feathers, grasses and leaves. The eggs, four in number, are white, spotted with reddish brown.

The Ottawa Museum holds as many as six specimens and five sets of eggs.

613. BARN SWALLOW—*Hirundo erythrogasta* Bodd.

At Fort Rae, Great Slave Lake, on 7th June, 1880, a nest of this bird was found by itself, built under the eaves of a small unused outhouse belonging to the establishment. It held but one perfectly fresh egg. The parent was shot and both were forwarded to Mr. Dalgleish. On 14th July, 1889, a nest, having but two eggs therein, was discovered in a similar position on a small outside building at Fort St. James, B.C. The contents of one of the eggs was only slightly changed, but the other was addled and in a putrid condition. The parent was shot, and the specimens were sent to Washington. When Fort Franklin was erected on Great Bear Lake, in 1825, many nests were found in the ruins of a house that had been abandoned for ten years, while at old Fort Good Hope, latitude $67^{\circ} 30'$ north, as well as at old Fort Chipewyan, latitude 59° north, barn swallows were formerly observed to arrive regularly about the same time every spring. The nest is usually composed of mud mixed with hay or straw and lined with fine grass and a

thick bed of feathers. Eggs, four or five in number, white and spotted with reddish-brown.

There are but five specimens and two sets of four and five eggs respectively in the Ottawa Museum!

614. TREE SWALLOW—*Iridoprocne bicolor* (Viell).

Early in the month of July, 1889, we observed several birds of this species building their nests under the eaves of the officers' dwelling-house at Fort St. James, Stuart's Lake. On the 17th we examined one of them and therein found four fresh eggs. A neighbouring nest, placed on the inner frame of the verandah in front of the residence, contained four eggs, with their contents considerably developed. As a lining the first mentioned nest had but a few withered leaves under the eggs, while the other was warmly provided with a lot of feathers. They were otherwise similar in construction to that of the barn swallow. We left with the parents one and two eggs respectively, for incubating purposes, while the remaining nests were not interfered with, and the young came forth in due course. Early in June, 1891, Mr. McKay, from "numbers laying in one place," secured two sets of eggs taken from nests found in holes made in decaying trees near Pelican Narrows, Cumberland. From three to four eggs are usually laid by the female birds. Specimens of both were duly forwarded to Washington. Both Richardson and Ross mention this species, but we never met with any, either at Fort Good Hope or the Anderson. The eggs are pure white. Nelson states that the tree has even a wider range than the barn swallow, though not breeding so far to the north, owing to its nesting in holes, in banks, and in trees.

There are thirteen specimens and but two sets of eggs in the Ottawa Museum—one of six taken at Wolfville, N.S., 5th June, 1894, and one set of three found in Ottawa by Dr. James Fletcher!

616. BANK SWALLOW—*Riparia riparia* (Linn.).

Mr. J. M. Macoun found this species very abundant on the Athabasca River between Lesser Slave Lake and Fort McMurray, latitude $56^{\circ} 40'$ north. First noticed June 1st. Not rare up the Clearwater River to Methye Portage; a few birds also seen by him on Deep River, near Isle à la Crosse. Sir John Richardson observed thousands fluttering at the mouths of their burrows near the outlet of the Mackenzie River, in latitude 68° north. At Fort Anderson we met with them in considerable numbers during the season of nidification. They build their nests in scooped-out holes in sandy or clayey banks on the Anderson River. Reported as very abundant at Dawson, Yukon. Sir Edward Parry is said to have seen a pair of birds at Melville Island, in latitude 77° north. The species is widely distributed throughout British Columbia and the North-Western Territories of Canada. The eggs are pure white and are exceedingly thin and very fragile. Mr. E. A. Preble observed a small colony on Red River, a few miles below Winnipeg, June 14th, 1901, and a large one in a high clay bank on the shore of Oxford Lake, near Oxford House, June 30th. Several colonies were seen on Hayes River, a few miles above York Factory.

The Dominion collection at Ottawa contains four skins, including one taken by Professor Macoun in May, 1888, at the Capital. Mr. Spreadborough secured the other three; also three sets of eggs—one of five obtained at Black Rapids, Ontario, June, 1894, by Mr. Otto Klotz; one of four taken near Toronto and received from Mr. W. Raine, and a set of five taken in Alberta, July 15th, 1900, by Mr. W. Spreadborough.

618. BOHEMIAN WAXWING—*Ampelis garrulus* Linn.

As late as 1874, "the only instances on record of the discovery of the eggs of this interesting bird in America were those of a nest and one egg taken by the late Mr. R. Ken-

nicott at Fort Yukon, Alaska, in 1861; and of a nest and egg found the same season in a pine (spruce) tree on Anderson River, in about latitude 68° north. Both are now in the Smithsonian Institution at Washington." Several skins were obtained at Fort Anderson in 1862, but the most diligent search failed to secure any more nests or eggs. Chief Trader B. R. Ross states that Mr. John Hope, a schoolmaster of the Church Missionary Society resident at Fort Franklin on Great Bear Lake, informed him that these birds breed in numbers in that vicinity, but so high up the trees as to render it a difficult task to obtain the eggs. A specimen was shot in February at Fort Liard, which caused him to mark the species as a winter resident. Sir John Richardson's remarks are also worthy of reproduction among these notes: "This elegant bird has only lately been detected in America, having been discovered in the spring of 1826, near the sources of the Athabasca River, by Mr. Drummond, and by myself the same season at Great Bear Lake, in latitude 65° north. It appears there in great flocks about 24th May, when it feeds on the berries of the alpine arbutus and marsh *vaccinium*. It stays only a few days. None of the Indians knew where it nests, but I have reason to believe that it is in the mountain limestone districts, in latitude 67° or 68° north." The nest is usually composed of fine twigs, roots and grasses, lined with finer material, and it is built in spruce and other trees. The eggs measure about 0.94 by 0.68 inch and up to 1.10 by 0.70 inches. They are noticeably larger than those of the cedar bird, but are of the same ground colour and sparingly spotted with round dark spots. There are ten specimens, but no eggs, in the Ottawa Museum! Three of these were taken by Professor Macoun at Canmore, Rocky Mountains, in June, 1885.

619. CEDAR WAXWING—*Ampelis cedrorum* (Viell.).

A nest built on a Douglas pine tree, at a height of about ten feet from the ground, was found by Mr. Charles Ogden at Fort George, Fraser River, New Caledonia, on 5th June,

1889. It contained four eggs. The female parent was well seen and is fully believed to have been a bird of this species. A male example was also shot near Stuart's Lake the same season. On 10th July, 1890, a nest holding three eggs was discovered on a spruce tree near Cumberland House, and one of its owners was shot in the immediate vicinity. There is reason for the opinion that the cedar, as well as the Bohemian waxwing, both breed at Pelican Narrows and elsewhere in the Cumberland District. Common in British Columbia. Mr. J. M. Macoun observed numbers of them in the English River District, while the Peace River would appear to be the limit of their northern range. The Ottawa Museum holds thirteen specimens and but one set of four eggs taken in that city!

621. NORTHERN SHRIKE—*Lanius borealis* Viell.

This species is not represented in my Athabasca, New Caledonia and Cumberland collections now under review, and yet it is a summer resident in these great sections of Western Canada. But at Fort Anderson, on 11th June, 1863, however, an interesting example of a nest containing six eggs was taken from a spruce tree, at a height of seven feet from the ground. "It is in many respects in striking contrast with the nests of its kindred species of the Southern States of the Union, far exceeding them in its relative size, in elaborate finish, and warmth. It is altogether a remarkable example of what is known as felted nests, whose various materials are most elaborately matted together into a homogeneous and symmetrical whole. It is seven inches in diameter and three and one half in height. The cavity is proportionately large and deep, having a diameter of four and one-half inches and a depth of two. Except the base, which is composed of a few twigs and stalks of coarse plants, the nest is made entirely of soft and warm materials most elaborately interworked together. These materials are feathers from various birds, fine down of the eider and

other ducks, fine mosses and lichens, slender stems, grasses, etc., and are skilfully and artistically wrought into a beautiful and symmetrical nest, strengthened by the interposition of a few slender twigs and stems without affecting the general felt-like character of the whole. The eggs measure 1.10 inches by 0.80, and are of a light greenish ground, marbled and streaked with blotches of obscure purple, clay colour and rufous brown." A second nest, of a much less elaborate character, containing eight eggs, was subsequently discovered on Anderson River to the northward of the post. Sir John Richardson states that this is by no means an uncommon bird in the wooded districts of the North-West Territories up to latitude 60° north, if not farther. Mr. Ross notes it as not rare up to Fort Good Hope, on the Mackenzie River. Fairly numerous in portions of British Columbia and also on the Yukon River. The Dominion Museum at Ottawa holds ten specimens and but one set of eggs, taken at Lansdowne, Ontario, by the Rev. C. J. Young, on 24th April, 1895!

624. RED-EYED VIREO—*Vireo olivaceus* (Linn.).

On 15th May, 1880, Mr. John Reid shot a female bird at Fort Providence, Mackenzie River, which was later forwarded to Mr. Dalglish. It no doubt breeds annually in that quarter. Early in June, 1890, Mrs. King secured two nests, with the eggs and parents, at Moose Lake, Cumberland. Mr. McKay, of Pelican Narrows, was equally fortunate the following season in finding a nest on a spruce tree which held four eggs. A bird supposed to be the mother was shot near-by at the time (early in June). He states that this fine songster sometimes builds on the ledge of steep rocks, but is rather rare in that locality. Mr. J. M. Macoun found them common also in the country between Isle à la Crosse and Fort McMurray, Athabasca River. Entered in Mr. Ross's List, "North to Fort Simpson, on the Mackenzie River. Rare."

Mr. G. R. White states that "a nest taken by him was a neat cup suspended by the brim in the embrace of a forked twig. It was built of strips of bark, pine needles, pieces of wasps' nests and paper. Apparently agglutinated with the saliva of the bird, and lined with fine grass. Eggs three to five, pure white, marked with fine dark reddish-brown spots toward the larger end." There are seventeen specimens and three sets of eggs, including one of three eggs taken at Robson, British Columbia, June 24th, 1890, by Professor Macoun, in the Dominion collection at Ottawa.

627. WARBLING VIREO—*Vireo gilvus swainsonii* Baird.

At Fort St. James, B.C., on 26th June, 1889, a nest containing four eggs was taken from a willow bush, and the mother bird shot in the immediate vicinity thereof. The eggs had been well incubated. Common throughout British Columbia, but rather rare in the north at Fort Simpson, where Mr. Ross secured a few specimens some forty-six years ago. Dr. Coues remarks that even in the latitude of 49° north few of the small insectivorous birds appear to lay before the third week in June. There are thirty specimens, but no eggs, in the Dominion Museum at Ottawa!

636. BLACK AND WHITE WARBLER—*Mniotilta varia* (Linn.).

We never came across any birds of this species during our long residence in northern and western Canada. Mr. Ross has done so, however, as his List of Mackenzie River Birds includes this warbler as a very rare summer resident at Fort Simpson. Mr. G. R. White states that it nests on the ground, the same being composed of bark, grass and leaves, lined with plant down and hair. They lay from four to six eggs, creamy white, spotted and sprinkled with reddish-brown. There are but nine skin specimens and no eggs in the Ottawa Museum.

646. ORANGE-CROWNED WARBLER—*Helminthophila celata*
(Say).

Common in Northern British Columbia, Alaska, and in the country to the south of the Peace River. Somewhat rare in the Mackenzie River region. It is also by far the least abundant of the several warblers which annually breed in the valley of the Anderson. We managed to secure a few nests there over forty years ago. They held from four to six eggs each, and they were made of hay or grasses lined with deer hair, feathers and finer grasses, and were usually placed in a shallow cavity on the ground in the shade of a clump of dwarf willow or Labrador tea.

The Ottawa Museum has four specimens, but no eggs, in its National Collection, and these were obtained from Mr. W. Spreadborough, who got them at Indian Head and Medicine Hat in the years 1892 and 1894.

647. TENNESSEE WARBLER—*Helminthophila peregrina*
(Wilson).

On the 18th of May, 1885, an individual of this species was shot near Fort Providence, Mackenzie River, and it was later forwarded to Dr. Bell. An example was also shot at Cumberland House, spring 1890, of which Major Bendire only acknowledged its receipt at Washington in May, 1893. I omitted to recount under No. 646, "that on June 18th, 1900, Mr. C. E. Whittaker found a nest of this rare warbler at Peel's River, within the Arctic Circle. It was built in the grass on the ground and contained six eggs. On June 22nd, 1902, Mr. Dippie found a nest and five eggs at Banff, Rocky Mountains." The nest of the Tennessee warbler is always on the ground, sometimes at the foot of a bush or growing twig. They are generally arched over by the fine dry grass of the preceding year. The nest is small and loosely constructed, being quite flat; it is outwardly made of a few leaves, a little moss, and a good deal of fine grass, lined only with the latter material. The eggs and their

size, number and colouring are supposed to be similar to that of the orange-crowned warbler. There are eight specimens, including one taken at the Athabasca Landing in May, 1888, by Mr. J. M. Macoun, but no eggs, in the Ottawa Museum!

650. CAPE MAY WARBLER—*Dendroica tigrina* (Gmelin).

Dr. Frank Russell secured the only straggler he observed at Fort Chipewyan, on May 31st, 1893.

At Long Lake, Yorkton, Saskatchewan Province, on June 2nd, 1891, Mr. W. Raine, of Toronto, took a nest and four eggs of this bird. It was built nearly three feet from the ground, in a willow. I don't think I ever saw this warbler. Neither Richardson nor Ross make any reference thereto, while the Dominion Museum at the Capital holds but two specimens, one of which had been purchased with the Holman collection, and no eggs!

652. YELLOW WARBLER—*Dendroica æstiva* (Gmelin).

In 1880 and again in 1885 specimens of nests, birds, and eggs of probably the most abundant and widely distributed of all the North American warblers were gathered at Fort Chipewyan and later shipped to Mr. Dalgleish. At Fort Providence Mr. Reid obtained several similar examples for Dr. Bell. It lays four or five eggs in a small and neatly constructed nest, placed on dwarf willows and small scrub pine at a height of a few feet above the ground. Mr. McKay, of Pelican Narrows, also gathered four nests, each holding four and five eggs. At Fort Anderson we realized the great abundance of this species, whose eggs were not *desiderata*, and we did all that was possible to discourage their collection. The eggs are greenish or greenish-white, dotted and blotched with reddish-brown and lilac. A nest and four eggs were sent to Washington from Cumberland House summer 1890. The Ottawa Museum contains thirty-three specimens and four sets of eggs, two of which were collected by Professor Macoun.

655. MYRTLE WARBLER—*Dendroica coronata* (Linn.).

In course of five seasons' residence at Fort Anderson, thirteen nests, each containing four or five eggs, were obtained, several of which were found on the ground, and the majority of them on low spruce bushes. The nest was in composition similar to that of *D. æstiva* and others of that ilk. Over forty years ago Mr. B. R. Ross obtained skins and eggs thereof in Mackenzie River. Somewhat rare in British Columbia. The eggs of this species are white, with more or less dark spots on them. There are seventeen skins and two sets of eggs in the National Museum at Ottawa.

656. AUDUBON'S WARBLER—*Dendroica auduboni* (Towns.).

On 1st June, 1889, an Indian hunter discovered a nest of this species on a willow bush, having therein four comparatively fresh eggs. The female parent was seen, badly shot, and a portion of the skin was brought in to Fort St. James for identification. Four days later another man turned up with a nest containing but one egg—the other two got broken on the way. There was a fourth which lacked the usual shell covering. Position and composition of nest were much the same. This is a fairly abundant summer resident throughout Northern British Columbia. If at all present, it must be rare in Western Canada east of the "Rockies." The Ottawa Museum holds twenty-eight specimens, and not an egg, of this interesting species!

657. MAGNOLIAN WARBLER—*Dendroica maculosa* (Gmelin).

A male bird was shot at Fort Providence in June, 1885, and it was sent to Dr. Bell. Mr. McKay found three nests, each holding four eggs, near the Company's post at Pelican Narrows, early in June, 1891. They were built on scrub pine, and the parents were duly secured. He states that these warblers arrive in spring as the trees begin to display their new leaves, on which they chiefly subsist. Mr. Ross

has it on his List, "North to Fort Simpson, but rather rare." Common on the Saskatchewan River, Scarce in British Columbia. The Dominion Museum collection at Ottawa comprises eight specimens, two of which Professor Macoun himself secured there in May of 1888, and two sets of eggs. One of these was found at Gaspereaux, N.S., on 10th June, 1901, in a small spruce bush, four feet from the ground, composed of fine twigs, grasses, etc., and lined with horse hair.

660. BAY-BREASTED WARBLER—*Dendroica castanea* Wilson.

There can be no doubt that this warbler is at least sparingly present in the Cumberland District every season for the natural purpose of reproduction. Even at Pelican Narrows Mr. McKay, early in June, 1891, procured a specimen skin which was forwarded to, identified, and duly acknowledged at Washington. It is not, however, abundant anywhere in Western Canada. Mr. E. A. Preble took a skin at Oxford House, Keewatin, on July 3rd, 1901. There are five specimens, but no eggs, in the Ottawa collection! Two of the specimens were obtained at Brandon, Manitoba, in June, 1880, by Professor Macoun himself.

661. BLACK-POLL WARBLER—*Dendroica striata* (Forster).

Two full sets of the eggs, nests and skins of this species, received from Fort Rae, were forwarded to Mr. Dalgleish in the summer of 1881. On 16th May, 1885, Mr. Reid, of Fort Providence, obtained an example skin, which was afterwards sent to Dr. Bell. Early in June, 1891, Mr. McKay took a nest with five eggs near Pelican Narrows. He states that they nest on bushes and that they "whistle very prettily." Mr. Ross remarks that they are common on the Mackenzie River north to La Pierre's House, while we found them more plentiful than *D. coronata* at Fort Anderson, where twenty-one nests were collected upwards of forty years ago. They were similarly made and situated, and contained four and five eggs each. The eggs are generally blotched

- with dark umber-brown as well as spotted and speckled like those of *D. castanea*. The Ottawa Museum contains fifteen specimens and three sets of three eggs, two of which were taken at Fort Chimo, Ungava.

674. OVEN BIRD—*Seiurus aurocapillus* (Linn.).

In 1890 two sets of eggs were obtained at Cumberland House. At Pelican Narrows, in the beginning of June, 1891, a nest was found on the ground, a mere depression lined with last year's grasses, the inner being of finer quality than the outer. It held four eggs, and one of the parents was shot. It breeds on Peace River, British Columbia, and on the Yukon River, Alaska. "In composition it frequently varies, but all the nests of the oven bird are more or less dome-shaped, which helps to conceal them from ordinary passers-by. The materials generally used are leaves and grasses, while some are almost entirely of pine needles, and others of fine wiry grass and a little hair. The number of eggs is mostly five, in colour pinky-white, very variable as to markings, but usually spotted and blotched, mostly in the form of a wreath on the larger end, with dark reddish-brown, light brown and pale lavender." There are four specimens, one of which was purchased and another collected by Professor Macoun at Ottawa, on 5th May, 1888, and one set of eggs taken at the same city and presented to the Museum there.

675. WATER THRUSH—*Seiurus noveboracensis* (Gmelin).

A nest of this species was found at Moose Lake, Cumberland District, early in June, 1890. It held two eggs. One of the parents was seen and killed. On the last day of the month another nest, with three eggs, was taken at Pelican Narrows, and the mother bird was shot near by. An example was also shot in the vicinity of Cumberland House. Nests on the ground, composed of coarse and fine grasses with a

sprinkling of dry moss. Mr. Ross says "North to La Pierre's House in the Mackenzie River District." Not so abundant or so widely distributed as the oven bird. While its nest is not dome-shaped, it yet is placed among the stumps and in the cavities of fallen trees, and is usually composed of more or less hay, withered leaves and plant stems intermixed with rootlets and similar material. Four and five eggs constitute a set, and they are white with reddish-brown spots, mostly at the larger end. The Ottawa Museum collection consists of only two specimens, taken at Algonquin Park, Ontario, on 28th May, 1900, by Mr. W. Spreadborough. There is not even one egg!

675a. GRINNELL'S WATER THRUSH—*Seiurus noveboracensis notabilis* (Ridgway).

On 25th June, 1889, an Indian brought into Fort St. James a nest containing five eggs, in which we found largely developed embryos. The nest was placed on a bush, but he failed to secure the parent. Next day, however, a boy took a nest with four eggs in a similar position. He asserted that he caught the mother thereon with his hand. The skin, nest and both sets of eggs were forwarded to Washington and were there identified under this heading. On June 10th, 1899, the Rev. Mr. (now Bishop) Stringer found a nest and four eggs at the mouth of the Mackenzie River. It was on the ground under willows near the river bank. Mr. W. Raine, of Toronto, is their possessor. Fairly common in British Columbia. The young in full plumage taken on the Yukon are said to be clove-brown above, including wings and tail, darker than usual in *notabilis*, and have darker streaks below. Eggs resemble those of No. 675. There is not a single egg, and but two skin specimens,—both taken by Mr. Spreadborough, one in 1892 at Indian Head, and the other at the Peace River Landing, latitude 56° 15' north, on 24th June, 1903—in the National Museum at Ottawa!

687. AMERICAN REDSTART—*Setophaga ruticilla* (Linn.).

This species is fairly abundant in the neighbourhood of Fort St. James, Stuart's Lake, where six nests were taken between 3rd June and 2nd July, 1889. Five of them were built on trees and bushes, at a height of several feet from the ground. They were composed of dry grasses, etc., and all but one—the sixth—was in a small cavity thereon; contained four eggs each, the contents of which were but slightly incubated, while the nest found on 14th June contained, among the others, one freshly laid egg. At Fort George, Fraser River, Mr. Ogden, on 16th June, secured a nest holding two eggs, on a bush, and on the 15th another with four whose parent was snared on the nest. An example was taken at Rupert House, Hudson Bay, on September 3rd, 1860, by Mr. James Mackenzie, of the Company's service. Mr. B. R. Ross also reports them as common on the Mackenzie River to Fort Good Hope. In certain sections the redstart appears to build more elegant nests and on taller trees than those herein referred to. Not uncommon throughout British Columbia. The National Collection at Ottawa contains nineteen specimens and a series of seven eggs taken at Ottawa and presented to the Museum.

697. AMERICAN PIPIT—*Anthus pensilvanicus* (Latham).

This species is common in British Columbia and throughout Alaska. On June 25th, 1900, Mr. Raine states that the Rev. (now Bishop) I. O. Stringer took a nest and five eggs at Peel's River; the nest was built of dried grass on the ground. We have reason to believe that the pipit is also among the birds which annually resort to the valley of the Anderson River during the season of nidification. The eggs of this species probably resemble those of *A. spragneii*, which are somewhat like those of the prairie horned lark, but are smaller. "Some have a pale buff ground, others grayish-white ground minutely speckled with buff and purplish-gray, with fine dark brown hair lines at the larger end of the eggs."

There are no eggs, but twenty-three specimens—including one taken by Dr. Robert Bell, at Resolution Island, Hudson Bay, in July of 1885—in the Dominion Museum at Ottawa!

735a. LONG-TAILED CHICKADEE—*Parus atricapillus septentrionalis* (Harris).

At Fort St. James, B.C., on 4th June, 1889, a Carrier hunter found four eggs in a nest in a hole of a stout dry pine. They had a small quantity of fine fur and wood dust under them. The contents of the eggs were quite fresh. Both parents were seen and the male was shot. Mr. H. McKay, of Pelican Narrows, took a nest there in a similar position early in June, 1891. It contained four eggs. He has known them lay as many as six, while this chickadee is among the comparatively few species which brave out the cold of winter in that northern locality. Fairly abundant in Alaska and British Columbia, and not rare on the Peace, Athabasca and Mackenzie rivers of the north. I believe that it also breeds and winters at Fort Anderson. There are fifteen specimens, but no eggs, in the Canadian collection at Ottawa!

739. ALASKAN CHICKADEE—*Parus cinctus alascensis* (Cabanis).

In previous A. O. U. Check Lists this species figured under *P. cinctus oblectus*, and I here reproduce the notes made thereanent in the frequently referred to paper on the "Birds and Eggs Collected on the Anderson in the Years 1861-1866": "On 1st June, 1864, a nest containing seven eggs was found near Fort Anderson, in a hole in a dry spruce stump, at a height of about six feet from the ground. It was composed of a moderate quantity of hare or rabbit fur intermixed with a sprinkling of dried moss. The female bird was snared on the nest, but the male was not seen. The contents of the eggs were tolerably fresh." It has since turned out that "this was the first specimen of the Siberian

chickadee obtained on the American continent." As birds of the genus undoubtedly winter in that region, additional examples of this and other chickadees may be discovered there some day. The Ottawa Museum does not contain a single skin or egg of this interesting bird!

740. HUDSONIAN CHICKADEE—*Parus hudsonicus* Forster.

Mr. McKay failed to find any nests of this bird at Pelican Narrows, where, in the spring of 1891, he shot a female, and this would indicate that they breed in that quarter. He states that it is not common, but is one of their "winterers." It is also reported as fairly abundant on the Yukon and Upper Mackenzie rivers, while we believed that it was represented by at least some stragglers on the Anderson River. My own recollection of the chickadee egg is that it is nearly pure white. There are three specimens, including one taken at Edmonton by Mr. Spreadborough in May, 1897, and one set of six eggs taken at Wolfville, N.S., June 3rd, 1896, by Mr. Harold Tufts, in the Ottawa Museum.

749. RUBY-CROWNED KINGLET—*Regulus calendula* (Linn.).

There can be no doubt that this species is to be met with during the summer season on the Anderson River, as both Indians and Eskimos assured me that they had seen birds exactly similar to a Fort Good Hope example shown to them. Common also on the Yukon River, where it no doubt breeds. As I have never seen its eggs, and as there is no reference thereto in Professor Macoun's frequently mentioned Bird Catalogue, no description of their colour or markings can be given in this paper. The Ottawa Museum holds twenty-four specimens, but no eggs, of this species!

757. GREY-CHECKED THRUSH—*Hylocichla aliciae* Baird. .

A parent bird with her nest and four eggs were taken near Fort Rae, spring 1880. Nest found on a small scrub

bush, and the specimens were later forwarded to Mr. Dalgleish. In the Anderson River region this species was present in considerable numbers, so that upward of two hundred nests were secured by us. The bulk of them were built on trees, and the balance on the ground. One nest was found as far east as the Wilmot Horton River. Common at old Fort Yukon, Alaska, where many years ago Mr. R. Kennicott and Chief Trader Lockhart secured specimens.

Mr. Raine states: "I have nests with sets taken in the Mackenzie delta by the Rev. Mr. (now Bishop) Stringer and Mr. Young. Mr. Stringer found a nest with three eggs sixty miles north of Point Separation, Mackenzie River, on June 12th, 1896. The nest was in a birch tree, two feet from the ground. The nest is a deep cup-shaped structure of dry grass and mud. I have another nest with eggs that was built three feet from the ground in a willow growing on the banks of Peel's River. This was taken June 23rd, 1898. Another nest and three eggs were found by Mr. Stringer at the terminus of the Caribou Hills, Mackenzie delta, June 15th, 1897." In colour the eggs of this species are bluish-green and but very lightly spotted.

There are in the Ottawa Museum but two skins, taken by Mr. Spreadborough at "Old Wives Creek," Province of Saskatchewan, in May, 1895, and one set of three eggs taken at Whale River, James Bay, Hudson Bay, in June, 1896, by Mr. George Bouchier!

758a. OLIVE-BACKED THRUSH—*Hylocichla ustulata swainsonii* (Cabinis).

Two or three nests of this thrush, containing from one to four eggs each, were found on bushes near Fort St. James, B.C., towards the end of June, 1889, and they were duly identified as such at Washington. Four nests with eggs were secured by Mr. McKay at Pelican Narrows early in June, 1891. Two of these were built on willow bushes and the others in small cavities on the ground. One or two of

the parent birds were shot. Reported by Mr. McKay as abundant in that quarter. "Morning and evening they emit a very melodious and shrilly whistle." Mr. Ross states that they are numerous on the Mackenzie north to La Pierre's House, and in the lower Rocky Mountains west of Fort McPherson, Peel's River. We never observed any examples at Fort Anderson. The eggs somewhat resemble those of No. 757. The Ottawa Museum contains eight specimens obtained from Mr. Spreadborough, and three sets of eggs, including one of four taken by Mr. A. P. Low on Hamilton River, Ungava, on 3rd July, 1894.

761. AMERICAN ROBIN—*Merula migratoria* (Linn.).

In the spring of 1880 Mr. James Flett, of Fort Resolution, Great Slave Lake, obtained a female and four eggs. The nest was built on a tree and was similar to hundreds of others met with throughout north-western Canada. Mr. Dalgleish became the recipient of these examples the following year. This robin is, without doubt, one of the most abundant and widely distributed of North American birds. Its eggs, however, not being wanted when I was stationed at Fort Anderson, the natives were strictly enjoined to let them alone, and but two nests, therefore, were received. A few of the species were observed by us on the banks of the Swan and Wilmot Horton rivers, in the Barren Grounds. Comparatively few parents display as great courage and devotion in defense of their young as Master Robin Red-breast. The nest is usually composed of grass, with a foundation of mud or earth intermixed with vegetable matter such as moss, leaves, weeds and a few hairs, lined with similar but finer material. Eggs, four or five in number, are of a rich greenish-blue colour, without spots or markings.

There are eighteen specimens, including an albino taken in 1891 at Billing's Bridge, near Ottawa, and five sets of eggs from Ungava, Edmonton and Ottawa, in the National collection in that Capital city.

763a. PALE VARIED THRUSH—*Isoreus naevia meruloides*
(Swains.).

One specimen was procured at Fort Franklin, Great Bear Lake, latitude 65° 30' north, in May, 1826. It was the only one observed. Mr. Raine, however, has a "nest and four eggs that were taken by the present Bishop Stringer, of Dawson, Yukon, in the eastern channel of the Mackenzie River, forty miles from its mouth. It was found on June 5th, 1895, in a spruce tree, fifteen feet from the ground. The nest is made of moose grass and is six inches in diameter and three inches deep. The eggs are a paler blue than a robin's, and are spotted with brown." It is surely rather surprising that there is no record that Sir John Richardson, in course of his third and last northern exploring expedition, or Mr. Robert Kennicott, Mr. Bernard R. Ross, and a number of other "Hudson's Bay" collectors, ever obtained or even observed a solitary example of this somewhat rare and interesting thrush. Nor is there a single specimen thereof on hand in the National Museum at Ottawa.

768. MOUNTAIN BLUEBIRD—*Sialia arctica* Swainson.

An example of this rather rare species was shot at Fort Resolution, Great Slave Lake, early in June, 1880. It was afterwards forwarded to Mr. Dalglish and identified by him. Sir John Richardson states that "only one specimen of this beautiful bird was shot at Fort Franklin, Great Bear Lake, in July, 1825, and that it was merely a summer visitor to the North-West Territories." Not entered in Mr. Ross's Catalogue of Mackenzie River Birds. It may be here mentioned that, of the many species which annually breed in the far north, we have never known any of them raise more than a single brood in any one season. Mr. George E. Atkinson, taxidermist, Winnipeg, a noted collector, states that on October 10th, 1898, he "received a fine male mountain bluebird from Mr. E. R. Patterson, of Brandon, Manitoba. It had been obtained two days before about two miles

west of that city and was in company with another individual of the same species." Professor John Macoun also states that "a nest found on 14th June, 1895, in a hole in a clay butte at Medicine Lodge, south of Wood Mountain, was wholly composed of the outer bark of the old stems of *Bigelovia graveolens*, a composite plant that grew in profusion near the site of the nest. It contained seven light blue eggs. Another nest taken under the same conditions along Frenchman's River, Province of Saskatchewan, on 21st June, was built of the outer bark of sage bush (*Artemisia cana*), and contained the same number of eggs."

The Dominion Museum collection at Ottawa holds thirty skin specimens and one set of seven eggs taken along Frenchman's River by the Professor himself, as above stated, on 21st June, 1895.

WATER BIRDS

38. LONG-TAILED JAEGER—*Stercorarius longicaudus* (Viellot).

This handsome jaeger is quite abundant along the Anderson River valley, in the "Barrens," and also on the Arctic coast. It lays two eggs in a depression in the soil scantily lined with withered leaves and grasses, etc., and as the egg markings greatly resemble their surroundings, the nest is frequently very difficult to discover. The parent birds by angry screams and hostile demonstrations invariably resent the presence of intruders, and in more than one instance they became so savage in their attacks, especially the female, that she had to be shot at once in order to prevent actual injury. Over thirty nests were taken, or double as many as that of *S. parasiticus*. The several species of jaeger doubtless destroy a considerable number of the eggs of other birds every season. This is the most common jaeger on the Alaskan coast. Occasional in Hudson Bay, very rare inland. Mr. Nelson states that the pairing of the birds occurs with

a great amount of noisy demonstration on the part of several rivals, but once paired they keep by themselves and early in June deposit their eggs in a depression on the mossy top of some knoll upon a rising ground. The National Museum collection at Ottawa contains one bird specimen procured at York Factory, Hudson Bay, by Dr. R. Bell, and one egg taken at George River, Ungava Bay, Labrador, by J. Forde in 1896.

42. GLAUCOUS GULL—*Larus glaucus* Brown.

Altogether some twenty nests were gathered by our collecting parties, chiefly on sandy islets in the bays of Franklin and Liverpool, and a few of these were also found on islands in the lower Anderson River; but the bird itself was observed in various localities.

Fifteen of the seventy nests secured contained two eggs each and but five held as many as three. The nest was usually a shallow depression in the beach, while in one of them we discovered an egg of the black brant which was being incubated by a bird of this species. The egg of the goose was in a more embryo-developed stage than those of the gull, which we have always considered as about the bravest of the *Laridæ* in defense of its eggs and young. Abundant on Great Slave Lake and at Richmond Gulf, Hudson Bay, and on the Labrador coast. The Ottawa Museum possesses but one bird skin, taken off Resolution Island, Hudson Strait, in 1885, by Dr. Bell, and fourteen eggs from Disco, Greenland, Cape Prince of Wales on Hudson Strait, Great Whale River, and James Bay, Hudson Bay.

43. ICELAND GULL—*Larus leucopterus* Faber.

This species was not seen, or at all events no specimens found their way to Fort Anderson from Liverpool Bay, but several sets of the eggs were procured on the shores of Franklin Bay early in July, 1863, and again in July,

1865. Very rare in Canadian continental territory. But in course of Captains Sir John Ross's and Sir Edward Parry's first Arctic exploratory voyages, many specimens of this gull were obtained in Davis Strait, Baffin Bay and at Melville Island. This species is far less common in Cumberland Gulf than the glaucous gull. On the Greenland coast, however, it is said to be the most common except the kittiwake. There are neither skins nor eggs thereof in the Ottawa collection.

53. CALIFORNIA GULL—*Larus californicus* Laurence.

Quite a number of specimens with eggs were received from the Lower Anderson Eskimos, and one or two nests were also found on the margin of small lakes in the vicinity of the Fort. According to Mr. B. R. Ross this species was abundant on Great Slave Lake. Also found along the coast of Vancouver Island, B.C., and it breeds in the interior of that Province. The Ottawa Museum does not possess a single specimen egg or bird of this species.

55. SHORT-BILLED GULL—*Larus brachyrhynchus*
(Richardson).

More numerous and widely diffused than the three preceding species (Nos. 53, 51a and 43). Its nest is usually a small cavity in the sand by the side of a running stream or pond of water, but it also frequently builds on a stump or tree, and in such cases small dry twigs, hay and moss are used in its construction. A goodly number of birds and eggs were collected at Fort Anderson. The parents did their very utmost to drive away intruders. On one occasion in the "Barrens" we wounded a male which a female *Stercorarius parasiticus* set upon as he fell into the water, evidently with no friendly intentions. But another shot killed both. The Ottawa Museum has a fine pair of skins taken in Victoria Harbour, B.C., in January, 1896, by Mr. John Tannin, but no eggs.

62. SABINE'S GULL—*Xema sabinii* (Sabine).

Quite a large number of nests of this beautiful gull were found on the seashores of Franklin Bay, and a few eggs were also received from the Eskimos of Liverpool Bay. Several birds were shot at the former point. On the first of July, 1864, we knocked over three out of a flock of sixty which came circling over our encampment. They then gracefully retired to and alighted in a pool of water at a safe distance. One of the three, having been merely stunned, soon recovered, and after two ineffectual attempts made by one of our Indian collectors to choke her, she again revived, and as I thought she had well earned her liberty I set her free. She flew away slowly towards her friends, who no doubt welcomed her with demonstrations of great joy, judging from the noise they made. After a few minutes they all took their departure, probably to their breeding-grounds.

Sir John Richardson has recorded that they breed on low islands off the west coast of Greenland, and westward to Melville Peninsula, Polar Ocean, latitude $75^{\circ} 30'$ north.

Nothing in the Ottawa Museum under this heading!

71. ARCTIC TERN—*Sterna paradisæa* Brunn.

This bird is equally common with tern No. 70, and we might easily have made a considerable collection of eggs from various localities throughout the Anderson River region. Neither species, however, approve of a close proximity of man to their nests. Richardson states that they breed very abundantly on the shores of Melville Peninsula and on the islands and beaches of the Arctic Sea.

The Dominion Museum at Ottawa contains two skins taken on Sable Island, N.S., August 16th, 1899; also one set of eggs from the Labrador coast, procured from Mr. Raine; one from Cape Prince of Wales, and another egg from Repulse Bay taken by Mr. Guy in 1896. In July, 1894, Dr. Klotz, Astronomer of the Department of the Interior, took a nest

containing two eggs on the border of the Baird glacier, Thomas Bay, Alaska. There was no pretence of a nest, only a hollow in the ground.

222. RED PHALAROPE—*Crymophilus fulicarius* (Linn.).

This species is fairly abundant along the shores of Franklin Bay, where nests were obtained amid marshy flats in the first week of July, 1864, and again in July, 1865. It abounds and breeds on the North Georgian Islands and Melville Peninsula, and was often seen by northern expeditions swimming in the sea far from land.

Nelson says it breeds abundantly on all the coasts and islands and far into the interior of Northern Alaska. Murdock also found it one of the commonest birds at Point Barrow. The nest is a slight depression in the ground and there is rarely any lining beyond a few withered leaves. In number the eggs are usually three or four.

There are two specimens, taken in Toronto marsh by Mr. S. Herring, but no eggs, in the Ottawa Museum!

223. NORTHERN PHALAROPE—*Phalaropus lobatus* (Linn.).

This species is met with in great abundance during the breeding season in the wooded country and in the Barren Grounds right on to the Polar Sea, where it is, however, not very numerous. The nest is similar to that of the red phalarope, being a mere depression in the ground lined with a few dry leaves and a sprinkling of dry grasses, and it is almost invariably situated on the margin of small pools or sheets of water. Upwards of seventy nests were secured by us at Fort Anderson—the number of eggs to a set being always four. Although the female parent usually left her nest when closely approached, both birds would sometimes exhibit much uneasiness and utter vociferous cries of distress while we remained in its vicinity. Said to be common along the Labrador coast, in Hudson Bay, near the Rocky

Mountains, in latitude 49° north, at Indian Head, Saskatchewan, and throughout Northern Alaska. The Ottawa Museum contains nine specimen skins but no eggs thereof.

239. PECTORAL SANDPIPER—*Actodromas maculata* Vieill.

We failed to discover any nests of this rather rare species. A few birds were observed flying near Fort Anderson and one or two were shot. In his Mackenzie River List of Birds Mr. Ross says, "common to Fort Simpson."

In the Ottawa National Museum there are two specimens (but no eggs) of this sandpiper—one taken at Ottawa in October, 1884, by Mr. Ernest White; the other shot by Mr. W. Spreadborough on Milk River, Alberta, on July 16th, 1895.

240. WHITE-RUMPED SANDPIPER—*Actodromas fuscicollis* Vieill.

Several nests of this species were found on or near the Arctic coast of Franklin Bay. One of these, taken on 3rd July, contained four considerably incubated eggs. Another, discovered on the following day, held but three eggs. A third, found in the Barren Grounds on 29th June, was, like the rest, a shallow cavity in the ground lined with a few decayed leaves containing four eggs, also having in them large embryos. A fourth nest, obtained on the bank of a small river, held four eggs whose contents were, however, in a much less developed condition than the others. Sir John Richardson says it is not infrequent on the shores of the small lakes that skirt the Saskatchewan plains. Both Turner and Spreadborough found them in large numbers in Ungava Bay, Labrador. They probably breed from Ungava to the north of Hudson Bay and thence westerly to the lower Mackenzie River. Murdoch refers to the shooting of two birds at Point Barrow, which is their only Alaskan record. A pair taken in Toronto marsh by Mr. S. Herring in October, 1884, is also the only record of them in the Ottawa Museum.

242. LEAST SANDPIPER—*Actodromas minutilla* Vieill.

This species was found breeding abundantly at Fort Anderson, on the borders of, as well as in, the Barren Grounds, and on and close to the shores of the Polar Sea. Upwards of twenty nests were secured, and in all respects they were precisely similar to those described under this genus. It does not appear to be abundant in other recorded parts, although it probably breeds sparingly in Labrador, Western Canada and Alaska.

The Ottawa Museum collection contains six specimens (but no eggs) taken at widely separated localities: three at Indian Head in May, 1892; two on Stubb's Island, off the west coast of Vancouver Island, B.C., in August, 1893, by Mr. W. Spreadborough; and one on Umiak Island, Behring Sea, by Mr. J. M. Macoun, in August, 1891.

255. YELLOW LEGS—*Totanus flavipes* (Gmelin).

Probably the most abundant and certainly the noisiest of all the waders we met with anywhere. Nests were found at Fort Anderson, on the lower Anderson River, in the wooded country to and along the rivers which flow through the Barren Grounds. In many instances the male birds were seen perching on trees in the vicinity, but when young ones were present both parents were particularly noisy and did all that was possible for them to attract away intruders, while the former soon learned to run and screen themselves from view in the grass. Over thirty nest entries are recorded in the Field Notes, while it is among the earliest of the waders which arrive and breed in the Arctic portion of the region under review. Richardson states that "this is a very common bird in the North-West Territories, and is seen either solitary or in pairs on the banks of every river, lake and marsh up to the northern extremity of the continent. On the lower Yukon River it is not so common as on the upper portion, where, at the old Hudson's Bay Fort Yukon Mr. J.

Lockhart many years ago secured both skins and eggs thereof. On the 15th of June, 1897, Professor Macoun came upon a small flock at a grassy pond in Alberta, about thirty miles from Calgary and near the foothills of the Rocky Mountains, and from the actions of the birds it seemed certain that they were breeding, but no nests were found. The Museum at Ottawa contains seven skin specimens and one set of eggs taken at Fort George, James Bay, Hudson Bay, in June, 1888, by Chief Trader Miles Spencer of the Hudson's Bay Company's service.

262. BUFF-BREASTED SANDPIPER—*Tryngites subruficollis* (Vieill.).

This species is common in the Barren Grounds east of the Wilmot Horton River and on the Arctic coast. Between the 26th of June and the 9th of July upwards of twenty sets of eggs were taken, and there were four in every nest, which was but a slight depression in the soil scantily lined with withered leaves and dried grasses. When the nest was approached the female parent usually made a low flight to a short distance. On the Mackenzie Mr. Ross reports this bird to be rare. Mr. Murdoch found it common at Point Barrow, where one of the nests found by him contained five eggs, while Mr. Nelson saw but few specimens at the Yukon mouth. On the other hand, Mr. Fannin states that it is tolerably common throughout British Columbia and also a resident. There are no eggs and only one skin, purchased with the Holman collection, said to have been taken at Toronto, Ontario, in the National Museum at the Dominion capital.

265. HUDSONIAN CURLEW—*Numenius Hudsonicus* Latham.

We never came across this curlew on our several eastern collecting expeditions from Fort Anderson to Franklin Bay, nor on the Arctic coast itself, but on the other hand it must be fairly abundant in the "Barrens" to the west of the

lower Anderson River, where the Eskimos discovered some thirteen or fourteen well identified nests, each holding four eggs. The parent birds were seen, and several were shot and snared. All species of curlew nest alike. Mr. Thompson Seton has not mentioned it in his "Birds of Manitoba," nor did Professor Macoun ever see it in any part of Western Canada traversed by him. It was common at Fort Churchill in 1884, according to Dr. Bell, and Samuel Hearne says it was so on the shores of Hudson Bay in his time. It is occasionally seen on the coast of British Columbia, but far from common, as only two specimens are recorded as having been taken. The chief breeding haunts of this bird seem to be still unknown, but the fact of Hutchins speaking of it shows that many of the eastern migrants must breed along the south shore of Hudson Bay. The Ottawa Museum possesses three specimen skins, taken on the island at Toronto, Ontario, by Mr. S. Herring. There are no eggs, however.

266. ESKIMO CURLEW—*Numenius borealis* (Forster).

This species breeds abundantly in the Barren Grounds to the eastward of Fort Anderson, and, except when otherwise described, these are the "Barrens" which are invariably referred to right up to the Arctic Sea. The nests in every observed instance were mere holes or depressions in the ground. Great difficulty was frequently experienced in finding them, as the eggs closely resembled the surrounding vegetation, and the mother, as a rule, glided away while we were still at some distance from the nest. Thirty sets of eggs were taken, including several received from aforesaid lower Anderson "Barrens." It may be here mentioned that among the many melodious bird notes which always greet one while traversing these grounds, especially on a fine sunshiny morning, none seem more joyous and pleasanter than the prolonged mellow whistle of the Eskimo curlew. It is not, however, supposed to breed in Labrador. In August, 1884, Dr. Bell found it in large numbers at Fort Churchill,

Hudson Bay. This curlew feeds on grubs, fresh water insects and the fruit of *Empetrum nigrum*, according to Richardson, who, on 13th June, 1822, found one hatching on three eggs on the shore of Point Lake, north of Great Slave Lake—the “winter quarters” of the celebrated Sir John Franklin and his party, on his first deplorably unfortunate overland expedition to the Arctic coast of continental North America. There are but two bird specimens (and no eggs), said to have been taken on Toronto Island, Ontario, in 1864, and later purchased with the Holman collection, in the Dominion Museum at Ottawa.

364. AMERICAN OSPREY—*Pandion haliaetus carolinensis*
(Gmelin).

If this species does not extend quite to Fort Anderson I feel satisfied that I have seen more than one individual bird, though not sufficiently near to be shot, between that post and Fort Good Hope, on the Mackenzie River. Mr. B. R. Ross obtained skins and eggs thereof at Great Slave Lake. In Alaska it is well known to attain a very high latitude, its eggs having been secured at Fort Yukon by Mr. James Lockhart, as well as by Messrs. Strachan Jones and James Sibbiston at other points in Alaska, in about latitude 67° north. A couple of those taken by Mr. Lockhart on 27th June were nearly fresh. The osprey generally builds its nest on tall trees, but sometimes also on high rocky cliffs. It is usually quite a big structure and there is but one brood raised in a season. “They subsist almost entirely on fish not commonly used for the table. Incubation is said to last about twenty-one days, but Major Bendire was inclined to think that it was nearer twenty-eight. The usual number of eggs to a set is three, occasionally only two, and seldom four. They are among the handsomest laid by the raptorial and subject to an endless variation in colour, markings and size. They are deposited at intervals of one or two days and the shell is strong and minutely granulated. They vary

greatly in shape, ranging from an ovate to either a short, rounded, elliptical or elongate ovate. The ground colour is usually a creamy white, and this is sometimes so evenly and regularly overlaid with pigment as to give it a buffy or vinaceous appearance."

Mr. W. Raine has a series of no less than two hundred eggs of the osprey, and they are, he says, the most handsome of all hawks' eggs. The Ottawa Museum collection of this species comprises four skins, taken at Billing's Bridge, near the Capital city, at Toronto and in British Columbia, and a set of three eggs taken at Portland Lake near Halifax, N.S., June 14th, 1895; also one taken by Mr. A. P. Low on the upper Hamilton River, Ungava, Labrador, June 10th, 1894.

367. SHORT-EARED OWL—*Asio accipitrinus* (Pallas).

Twelve nests of this owl were found in various situations in the "Barrens," as well as in sparsely wooded tracts, but all were on the ground and were depressions apparently scraped out for the purpose, and they were lined with dried grasses and withered leaves; a few feathers were noticed in about half of them, and these seemed to have been plucked from her breast by the parent bird. She occasionally sits very close on her nest. The number of eggs in a nest varies between three and five; only one of the foregoing contained as many as seven. On 30th June, 1865, one of the species was observed flying about a particular spot in the Barren Grounds, and we concluded that its mate was not far off, a suspicion confirmed by its uneasy excitement as soon as a search was instituted. Myself and four of our party were thus fully engaged over an hour ere success rewarded our efforts by the female gliding away from her nest, in the centre of a small clump of dwarf willows one foot in height, just as she was almost trodden upon. It was composed of withered grasses and feathers, and contained five eggs. We must have frequently approached it very closely in course of our rather protracted investigation. This species appears to be

fairly common and very widely distributed over the northern states of the Union, throughout the Dominion of Canada to the Polar Ocean, and also in Alaska to Point Barrow. Mr. Raine says that he has three sets of its eggs that were taken at Shoalwater Bay and Mackenzie River Bay, Arctic America. One set of five was found June 6th, 1898; another set of four June 4th, 1890; and another set of five June 7th, 1898, so that the first week in June appears to be the time this bird has fresh eggs in that remote locality. The Eskimo name for this owl is "Nipaiclooktik." According to Major Bendire, its food consists almost exclusively of small rodents, mice, lemmings and gophers, as well as grasshoppers, insects of various kinds, and occasionally a small bird. Like the barn and long-eared owls and several of the hawks, it deserves and should receive the fullest protection, being far more beneficial than otherwise. Incubation probably lasts about three weeks, and ordinarily but one brood is raised. The eggs are usually from four to seven in number. They are white in colour, with a very faint creamy tint perceptible in most of the specimens; the shell is smooth, finely granulated and not as lustrous as are the eggs of the preceding long-eared species. In shape they vary from oval to elliptical ovate, and a few are nearly equally pointed at each end.

The Canadian National Museum contains six bird specimens, one of them purchased with the Holman lot in 1885, one from Quebec, one from Ontario, and the other three (one each) from Saskatchewan, Alberta and British Columbia; also one set of five eggs taken at Moose Jaw, Saskatchewan, May 28th, 1894, by Mr. W. Raine. Nest on ground, a hollow lined with grass and weeds, built on a rising ground overlooking the slough. Mr. Ross says this owl is common in the Mackenzie River district to Fort Simpson, while the long-eared species is rare, and both are "winterers."

370. GREAT GREY OWL—*Scotiaptex cinerea* (Gmelin).

I should not say that this owl was in "great abundance" in the Anderson region, as inadvertently stated on page 33

of Volume III. of the "Land Birds of North America." We certainly observed very few individuals, and we found but one nest, that referred to in the same paragraph, on the 19th of July, 1862, near Lockhart River, on the route between Fort Anderson and Fort Good Hope. It was built on a pine spruce tree at a height of about twenty feet, and was composed of twigs and mosses thinly lined with down and feathers. It contained two eggs and two young birds, both of which had lately died. The female rose at our approach and flew to another tree at some distance, where she was shot. Sir John Richardson says: "This imposing bird, which was first described from an example from Hudson Bay, is by no means a rare bird in the North-West Territory, being an inhabitant of all the wooded districts lying between Lake Superior and latitude 67° or 68° , and between Hudson Bay and the Pacific. It is common on the borders of Great Bear Lake, and there and in the higher parallels of latitude, must pursue its prey during the summer months by daylight. It keeps, however, within the woods and does not frequent the Barren Grounds."

Professor Macoun has noted that a specimen (No. 32, 306) in the Smithsonian Institution at Washington was obtained by Mr. James McKenzie of the Hudson's Bay Company, at Moose Factory, James Bay, Hudson Bay. The type specimen is from a set of two collected by Mr. James Sibbiston of the Hudson's Bay Company, near Fort Yukon, Alaska, in April, 1864. The Museum of the Dominion at Ottawa contains two fine bird specimens, but no eggs! Both specimens were procured at Toronto, Ontario, by Mr. S. Herring.

As these Notes have expanded beyond what had been anticipated, they will now close with an extract from the Preface to Part I. of Professor Macoun's "Catalogue of Canadian Birds," while certain references to the sad fate of the celebrated Admiral Sir John Franklin,—after whom, in 1826, the eminent naturalist, Sir John Richardson, named the fine bay (Franklin) so frequently referred to as

one of the principal bird and egg specimen contributing fields of the Anderson collections of 1861-1866—may not prove out of place. The Professor was pleased to state, “In regard to Northern stations the work of Mr. R. MacFarlane takes first place, and the value of his collections and observations on the nesting habits of birds within the Arctic cannot be overestimated.”

“On the 26th May, 1845, Sir John Franklin sailed from England, with the ships *Erebus* and *Terror*, for the discovery of the long-sought-after North-West Passage between the Atlantic and Pacific oceans to the north of the American continent. Franklin, just returned from seven years’ service as Governor of Tasmania, was then fifty-nine years of age, but as full of Arctic enthusiasm as ever. He would not apply for the duty, but when all turned to him as best fitted for the command, he accepted it unhesitatingly. He assured a friend ‘that no service was dearer to his heart than the completion of the survey of the northern coast of America and the accomplishment of the North-West Passage.’

“As no definite information respecting the expedition reached civilization after the ships were last seen, on 26th July, 1845, moored to an iceberg in latitude 74° north and longitude $66^{\circ} 13'$ west, heading for Lancaster Sound, the friends and relatives as well as the general public began to feel much anxiety about their welfare and safety. In 1848 the British Admiralty was fully aroused, and from then on until 1854 they spared no trouble or expense in the endeavour to rescue or ascertain the fate of the missing navigators. Several land and boat search expeditions were despatched to the northern coast by way of the Mackenzie and Coppermine rivers. These were under the direction of Sir John Richardson and the notable Arctic traveller, Dr. John Rae, Chief Factor of the Hudson’s Bay Company.’

“But the most persistent and costly exertions for the relief of Franklin and his companions were those made by sea from the Atlantic. The Government organized many

search expeditions under such able and experienced commanders as Sir James Ross, Sir Edward Belcher, Sir Leopold McClintock, Admirals Austin, Richards, Kellett, Sherard Osborne, and Captains Ommaney, Cater, Pullen, Penny and others. British private generosity sent forth the *Felix* under Sir John Ross. A spirit of kindred sympathy impelled American citizens and their Government to unite in equipping several auxiliary ships under Captains de Haven and Griffin and the heroic Dr. Kane and his associate, Dr. Hayes; while the wifely devotion of Lady Franklin despatched three additional vessels—the first, *Prince Albert*, in command of Captain Forsyth, and later of Captain William Kennedy, afterwards of St. Andrew's, Manitoba, and his gallant but unfortunate colleague, Lieutenant Bellot, of the French naval service.

“Neither was the sea search by way of the Pacific neglected. In 1848 the ships *Herald* and *Plover* left for Point Barrow, Alaska, via Cape Horn and Behring's Strait. Two years later they were followed by Captains Collinson and McClure, with H. M. ships *Enterprise* and *Investigator*. It is remarkable that, of all the many ship expeditions sent out, the *Enterprise* in October, 1852, without knowing it, got nearest by sea to the scene of the great disaster, while Collinson in May, 1853, actually looked across the frozen Victoria Strait where Franklin's ships were so long beset in the ice, quite unconscious that King William Land (Island) held the unburied skeletons of the men he sought; but the roughness of the ice and the weakness of his sledging party forbade crossing.

“It may prove of interest to recount that nothing in the long tale of Arctic research is finer than the cool way in which Captain McClure and his gallant band fought their way in the *Investigator* around that terrible ice-beset western coast of Baring Island. There, in Mercy Bay, the winters of 1851-2 and 1852-3 were passed, and there was no hope of ultimate egress by remaining with the ship. In April

of 1853, while making preparations to quit, by one half or more of the crew proceeding on the ice towards Cape Spencer (550 miles distant) and the others by boat to the Hudson's Bay posts on the Mackenzie, Captain Bedford Pim, of Sir Edward Belcher's Eastern Search squadron, providentially turned up. It is quite safe to say that Pim's judgment, determination and exertions averted another 'Franklin' disaster. Later, Belcher ordered the abandonment of the *Investigator*, and its crew, travelling by sledges on the ice of Barrow Strait, was the first that made this or any other North-west passage. For this important discovery, however, the British Government awarded the sum of ten thousand pounds sterling to McClure (who was also knighted) and his crew. His voyage geographically was a grand success, but as an Arctic search it must be classed as a failure.

"Not until six years after Sir John Franklin had entered Lancaster Sound, however, did any of the many search parties make their first discovery of traces and relics of the missing navigators. On the 23rd of August, 1851, Captain Ommaney observed distinct signs of the presence of Europeans on Beechey Island and Cape Riley, which was changed to certainty four days later when Captain Penny found at the former place three graves of men belonging to the *Erebus* and *Terror*, who had died between January and April, 1846. Seven years later McClintock (afterwards Admiral Sir Leopold, who recently died at a great age) ascertained that before laying up there for the winter they had in their very first season out from England accomplished more in the way of discovery and navigation than had been attained by any previous or succeeding expedition."

It may be here stated that the Lady Franklin Memorial Tablet erected by McClintock on Beechey Island in August, 1858, "near the spot where they (Sir John and his companions) passed their first Arctic winter, and whence they issued forth to conquer difficulties or to die," has been placed upon the raised square in the centre of which stands the cenotaph

recording the names of those who perished in the Admiralty expedition under Sir Edward Belcher. There also is placed a small tablet to the memory of the lamented Lieutenant Bellet, of the French Navy, who lost his life in August, 1853, while engaged in carrying an official despatch from his own captain to Admiral Belcher, near the entrance of Wellington Channel.

"After the finding of the relics on Beechey Island, the eastern commanders largely forgot or overlooked Section v. of Franklin's Admiralty instructions, who was thereby urged, after reaching Cape Walker, in proceeding 'from that point to use every endeavour to penetrate to the southward and westward, in a course as direct towards Behring's Strait as the position and extent of the ice or the existence of land at present unknown may admit.' There can be little doubt that this action on the part of the leaders of the later employed search ships, while it added considerably to the geographical knowledge, yet prevented them from proceeding in the direction in which their energetic efforts might have resulted in the possible rescue of a few survivors, or at all events, in an earlier and more satisfactory discovery of the fate and the recovery of many valuable records of the lost expedition."

Before giving a brief account of the second Franklin relics discovery, made by Dr. Rae in the spring of 1854, I would now refer to his boat voyage of August, 1851, when he actually got within fifty miles of the spot where the *Erebus* and *Terror* were abandoned in the ice three years and four months previously. He unfortunately failed in his efforts to cross Victoria Strait to King William Land, which was in sight, else he might then have secured some of the Franklin records, discovered the stranded ship, and learned the fate of the party four years earlier than he did. The Franklin ships and Dr. Rae's boats thus made the nearest approach by sea to the only practicable North-west passage. A year later, as already mentioned, Collinson found himself

in a similar position, but the Doctor was just as unconscious of the reality, although to him was then given the finding of the butt of a flag-staff with the tack and line bearing the Government broad-arrow mark; and to Collinson afterwards a steam-engine iron rod and part of a ship's door or hatchway, all of which—from the locality—must have at one time belonged to and come from the missing ships.

On the 31st of March, 1854, Dr. Rae set out from his winter quarters at Repulse Bay, Hudson Bay, to explore the west coast of Sir John Ross's Boothia Felix, and on 20th April, in latitude $68^{\circ} 29'$ north and longitude $90^{\circ} 19'$ west, he met a young Eskimo who gave him the first information obtained of the fate of the Franklin expedition. He stated to Rae that in the spring of 1850, about forty white men were seen dragging a boat southward along the west shore of King William Land. They bought a seal from some Eskimo hunters, to whom they told that their ship had been crushed by ice and that they were going to a land where they could shoot deer. Later that spring before the ice broke up the bodies of some thirty men were found on the continent, and five on an island a day's march to the northward. This pointed to Back's Fish River and Montreal Island as the places, though possibly they might have referred to Lieutenant Schwatka's "Starvation Cove," or the "Tod Island" of Charles Hall, both situated near the mouth of Back's River. The other natives reinforced his statements by producing silver plate with the Franklin crest, which, with other articles, left no doubt that their story was substantially correct and that the members of the Franklin expedition had all perished.

In 1855 (as above referred to) Chief Factor James Anderson, with Chief Trader (later Chief Factor) James G. Stewart as his second, descended Back's Great Fish River in three birch-bark canoes, meeting Eskimos at various points. At the lower rapids they met quite a number who had numerous relics in their possession. On Montreal Island they saw some caches containing similar articles. The natives told

them that all these had come from a boat which had belonged to white men who had died of starvation. Unfortunately the expedition had no interpreter and the party could not cross over to King William's Land from Point Ogle owing to the drifting ice and the frailty of their craft. A close search for ten days in that neighbourhood failed to afford any additional information, nor did they find a record of any kind.

"On the return of Anderson with this rather indefinite confirmation of Rae's Eskimo report, the Admiralty considered the fate of Franklin determined, and consequently awarded to Dr. Rae and his men ten thousand pounds sterling, which had been the offered reward to any one setting at rest the fate of Sir John and his companions, which had now been done indirectly. Thus ended the exertions of the British Admiralty to determine the exact fate and extend succour to the unfortunate members of its official expedition for the discovery of the North-West Passage. It remained for a wife's devotion, however, at private expense, to ascertain that which the Government of Great Britain acknowledged was its duty, but which its *officialism* was unable or unwilling to accomplish."

As the British Government declined to incur further expense, or risk any more brave lives in what they viewed as a hopeless course, Lady Franklin resolved to spend all her available means (already much exhausted by her own several independent search expeditions) in a thorough exploration of the limited area to which the search must now be restricted. In this final attempt, however, she was handsomely assisted by many naval men, and was fortunate in securing for this important duty Captain (later Admiral Sir Leopold) McClintock, who had signally distinguished himself under Ross, Austin and Kellett. On 1st July, 1857, McClintock sailed from Aberdeen in command of the steam yacht *Fox*, of but 170 tons burthen, with two energetic and experienced assistants—Captain Allen Young and Lieut. W. R. Hobson, R.N.

On their way to Lancaster Sound they were beset in the pack ice in the middle of Melville Bay for eight months, and the *Fox* during that time drifted therewith nearly fourteen hundred statute miles before she could be extricated from her dangerous position, in latitude 63° north. After this terrible experience Captain McClintock was obliged to refit in the Greenland ports of Disco and Upernavik, and then set out on his memorable voyage of discovery.

"In the autumn of 1859, McClintock returned to England, and his report of operations not only confirmed the truth of Dr. Rae's principal statements, but he also furnished numerous additional relics and details respecting the death of Sir John Franklin and many of his officers and men, as well as the sad fate which befell Captains Crozier and Fitzjames and their one hundred and three associates. He, however, failed to find any of the important records of the last expedition, save and except one of the printed forms usually supplied to British exploring ships for the purpose of being enclosed in bottles and then thrown overboard at sea. Upon this first one (the only direct information that has ever come from the Franklin party), found in a cairn of stones at Point Victory, on the north-west coast of King William's Land (Island), was written, apparently by Lieutenant Graham Gore, as follows: '28th May, 1847. H. M. ships *Erebus* and *Terror* wintered in the ice in latitude 70° north, longitude $98^{\circ} 23'$ west, having wintered in 1846-7 at Beechey Island, in latitude $74^{\circ} 48' 28''$ north, longitude $91^{\circ} 31' 15''$ west, after having ascended Wellington Channel, in latitude 77° north, by the west side of Cornwall's Island. Sir John Franklin commanding the expedition. All well. Party consisting of two officers and six men left ships on 24th May, 1847. Gm. Gore, Lieutenant; Charles F. des Voeux, Mate.'

"There is an error in the above document, namely, that the *Erebus* and *Terror* wintered at Beechey Island in 1846-7. The correct date should have been 1845-6. A glance at the

date at the top and bottom of the record proves this; but in all other respects the tale is told, in as few words as possible, of their wonderful success up to May, 1847. But alas! alas! around the margin of the paper which Lieutenant Gore, in 1847, wrote the words of hope and promise, another hand had subsequently written the following words:

“ ‘April 25th, 1848. H.M. ships *Terror* and *Erebus* were deserted on 22nd April, five leagues north north-west of this, having been (ice) beset since 12th September, 1846. The officers and crews, consisting of 105 souls, under the command of Captain F. R. M. Crozier, landed here in latitude 69° 37' north, longitude 98° 41' west. Sir John Franklin died on 11th June, 1847. The total loss by deaths in the expedition has been to this date nine officers and fifteen men.

‘ F. R. M. CROZIER,

Captain and Senior Officer.

‘ JAMES FITZJAMES,

Captain H. M. ship “Erebus.”

‘ And start (on) to-morrow, 26th, for Back’s Fish River.’

“ There is some additional marginal information relative to the transfer of the document to its present position (the site of Sir James Ross’s pillar of 1830) from a spot four miles to the northward, where it had originally been deposited by the ‘late Commander Gore.’ (Gore also deposited a similar record in a small cairn in Back’s Bay, several miles to the south. Both records were found by Lieutenant Hobson.) This little word ‘late’ shows that he, too, had passed away. In the short space of twelve months how mournful had become the history of Franklin’s expedition—how changed from the cheerful ‘all well’ of Graham Gore! A sad tale was never told in fewer words. There is something deeply touching in their extreme simplicity, and they show in the strongest manner that both of the leaders of this retreating party (Captains Crozier and Fitzjames and Doctors Stanley and Goodsir, who were well known for their talents and acquirements) were actuated by the loftiest sense of duty,

and met with calmness and decision the fearful alternative of a last bold struggle for life rather than perish without effort on board their ships, for we know that the *Erebus* and *Terror* were only provisioned up to July, 1848.

"The spring of 1847 had found them within ninety miles of the known sea of the American coast, and to men who had already sailed over five hundred miles of previously unexplored waters, how confident they must have felt that the forthcoming navigable season of 1847 would see their ships pass over so short an intervening space. It was ruled otherwise, however. Many relics were found and brought home to England by Captain McClintock of these heroic men who perished in the path of duty—but not until they had achieved the grand object of their voyage, the discovery of the long-sought-for North-West Passage! Had Franklin only known that the King William Land of Sir John Ross, as later ascertained by Dr. Rae, was an island; and had he then taken the eastern instead of the attempted western passage of Victoria Strait, he would, in all probability, have carried his ships by the American coast to Behring's Strait, and thence, *via* Cape Horn and the Atlantic, to England. Capt. McClintock passed on foot over this connecting link of the only feasible North-West Passage.

"The Eskimos informed McClintock that they saw one of the Franklin ships sink in deep water, and that the other was driven ashore by the ice, where she grounded, and they got lots of material from the wreck. They also told him that they discovered the body of a large man with long teeth on board of this ship. McClintock, on his travels, found King William Island for the most part extremely barren, and its surface dotted with numerous ponds and lakes. It is not by any means a land abounding with reindeer and musk oxen. There were none of the latter, and but few of the former, met with. It is a remarkable circumstance that when Sir James Ross discovered Point Victory, in 1830, he named the prominent points of land in sight, Cape Franklin

and Cape Jane Franklin respectively. Eighteen years afterwards Franklin's ships perished within sight of these headlands! The point at which the fatal imprisonment of the *Erebus* and *Terror* in the ice took place is only ninety miles from the spot reached by the Hudson's Bay Company's expedition, under Dease and Simpson, in 1839, coming from the West. Ninety miles more of open water and the Franklin crews would not only have won the prize they sought, but reached their homes to wear their well-earned honours. It was not to be so! Let us bow in humility and awe at the inscrutable decrees of that Providence who ruled it otherwise. It was given them to win for their country the long-sought-for great highway between the Atlantic and Pacific. It was given them to win for their country a discovery for which she had risked her sons and lavishly spent her wealth for several centuries; but they were to die in accomplishing their last great earthly task, and, still more strange, but for the energy and devotion of the noble and loving wife of their chief and leader, it might never have been known that they were indeed the first discoverers of a North-west passage!"

The expedition under Captain McClintock which obtained this information was the last of eighteen sent out from England in search of Franklin and his followers. A more ample and creditable effort to rescue a lost party was never made, and it was humanely seconded by our sympathetic kindred of the United States of America. From the earliest Arctic researches of John Cabot, at the end of the fifteenth century, however, to the voyage of McClintock, there have been about one hundred and thirty expeditions. Sir James Ross, in 1847, thought the Franklin ships might be heard of or looked for about latitude 73° north and longitude 135° west. Sir John Richardson coincided in this view; but it is only rendering justice to the memory of the late Dr. Richard King, M.D.—former companion of Admiral Sir George Back, when he discovered and descended the Great Fish River in 1833—to state that, early in 1847, he strongly suggested and thereafter

continually maintained that a necessity existed for the despatch of a party to the neighbourhood of King William Land by way of that river. It would take too much time to enumerate all the various projects of service for Arctic discovery and Franklin search exploration submitted to the Admiralty by Dr. King in course of the twenty years (1834-1854) succeeding his return to England. Suffice it for me to state that subsequent knowledge and experience have shown that he was right in nearly all of his views and recommendations in respect to both matters. It is remarkable that Dr. King, even more than Lady Franklin, had beforehand correctly indicated the precise locality for search, and the after-scene of the great tragedy. Unfortunately, however, for all concerned, the doughty doctor was *persona non grata* with the naval authorities of the time, and he had also made himself somewhat obnoxious to the Hudson's Bay Company, and his persistent suggestions and persistent proffers of service consequently failed to obtain that attention and consideration which they certainly merited.

There can be no doubt, however, that a well organized and equipped overland expedition, such as that sent out in the spring of 1848 under Sir John Richardson and Dr. John Rae, and which descended the Mackenzie River, might—had it then gone down the Great Fish River towards King William Land—have succeeded in rescuing any survivors (and there must have been some at that time living on shipboard of those of the original one hundred and five who had in all probability gone back), but also have secured all or most of the highly valuable and interesting records of the Franklin explorers. Even to the last Dr. King firmly believed that his "King cache" on Montreal Island, examined by Thomas Simpson in 1839, and whose exact position was known to Franklin, would probably (before the end came) be chosen by the retreating party who perished in that quarter as a safe receptacle for all records in their possession. When McClintock visited the island, in the spring of 1859, the

ground was still much covered with snow, while Schwatka and Gilder's investigation thereof, in 1879, failed to find them. And yet these records may ultimately perish there because there is no one in existence to-day who knows the exact position of that cache.

The names and status of the officers of the Franklin Expedition when they left England, in 1845, are surely worthy of record:

H. M. Ship "Erebus"

Captain—Sir John Franklin, K.C.B.
 Commander—James Fitzjames
 Lieutenant—Graham Gore
 ——— H. P. D. Le Vesconte
 ——— James W. Fairholme
 Surgeon—Stephen S. Stanley, M.D.
 Ice Master—James Read
 Paymaster—C. H. Osmer
 Asst. Surgeon—H. D. S. Goodsir, M.D.
 Second Master—Henry F. Collins
 Mate—J. P. Couch

AND

Fifty-four Petty Officers, Mechanics,
 Marines, and Able Seamen, &c.

H. M. Ship "Terror"

Captain—F. R. M. Crozier
 Lieutenant—Edward Little
 ——— George H. Hodgson
 ——— John Irving
 Surgeon—John S. Peddie, M.D.
 Ice Master—Thomas Blanky
 Asst. Surgeon—A. Macdonald
 Second Master—G. A. MacLean
 Clerk in Charge—E. J. H. Helpman
 Mate—Charles F. des Voeux

AND

Fifty-four Petty Officers, Mechanics,
 Marines, and Able Seamen, &c.

"The late Admiral Sir John Franklin was a brave, able, and experienced navigator and explorer. He was also a man of great amiability of character. Sir George Back, an old and intimate friend, and companion also on both of Franklin's overland expeditions to the shores of the Polar Ocean, used on occasion to relate that it was his custom never to kill a fly, and though often teased by mosquitoes beyond expression, especially when engaged in taking astronomical observations, he would quietly desist from his work and blow the half-gorged intruder from his hands, remarking that "the world was wide enough for both." Lord Tennyson, on the Memorial Tablet erected to Franklin in Westminster Abbey, beautifully chronicles his quiet death:

"Not here: the white North has thy bones; and thou,
 Heroic sailor soul,
 Art passing on thy happier voyage now
 Toward no Earthly Pole."

General Greely, U.S.A. (a renowned Arctic traveller), considers Collinson's referred-to voyage as one of the most remarkable and successful on record. With a sailing ship he navigated the Arctic, forward and back, through 180 (61 one way) degrees of longitude, a feat only excelled by the steamer "*Vega*," but he also sailed the "*Enterprise*" more than ten degrees of longitude through the narrow straits along the northern shores of continental America; which never before nor since have been navigated, save by small boats and with excessive difficulty. Of all Government naval expeditions searching for Franklin he (elsewhere mentioned) came nearest the goal. Admiral Richards has also characterized Collinson's Arctic Journal as a "record of patience, endurance, and unflagging perseverance, under difficulties which have perhaps never been surpassed."

Captain Kennedy and Lieutenant Bellot wintered in Batty Bay, Regent Inlet, and from there made a journey of great importance of eleven hundred miles in ninety-seven days. They discovered that the Brentford Bay of Sir John Ross was a strait (now known as Bellot Strait, after that lamented French officer), which they passed, unconscious that it was the most northerly point of North America. Altogether the Kennedy search, in Greely's opinion, was one of the best conducted and most promising of all, relative to the end in view.

Again General Greely observes that as Dr. Rae was compelled to hunt and explore on foot without dogs or native Eskimo assistance, it should not be considered surprising that he did not examine all of West Boothia on the occasion of his hearing of Franklin's fate, while he believed that his eleven hundred mile journey of exploration with two men in the spring of 1851 is one of the most remarkable on record.

Readers of the narrative of the northern coast discoveries of Dease and Simpson, in the years 1837, 1838, 1839, under the auspices, and at the expense, of the Hudson's Bay

Company, may remember that they erected a large and conspicuously placed cairn of stones at Cape Herschell, latitude $68^{\circ} 41' 16''$ north, longitude $98^{\circ} 22'$ west,—their most northerly attained point. This cairn was on the line of retreat of the Franklin men under Crozier and Fitzjames. Captain McClintock visited the spot early in June, 1859, and found that one side of the cairn had been pulled down, probably by the retiring party, and, from evident indications, they no doubt placed a notice and perhaps some of the valuable records of the expedition therein. Unfortunately, however, Eskimos undoubtedly visited, secured and destroyed these papers. McClintock says he could not divest himself of the belief that some record was left there, and possibly some most important documents which their slow progress and fast failing strength would have assured them could not be carried much farther. It was with a feeling of deep regret and much disappointment that he left Cape Herschell without finding any records whatever. He therefore truly remarks: "Perhaps in all the wide world there will be few spots more hallowed in the recollection of British seamen than this cairn on Cape Herschell."

"Some regret had been expressed by many people interested in Arctic exploration that after the return of Sir Leopold McClintock no steps were taken by the British Government to obtain still further particulars of the fate of Franklin and his gallant men. In the United States, however, among our kith and kin, the subject was not forgotten. The late Captain Hall pursued a laborious investigation among the Eskimos of that region, and eventually ascertained that one of the abandoned ships, with five of her crew on board, had actually, and in a measure, accomplished the North-West Passage, and that she was afterwards deserted by them near Reilly Island, in about latitude $68^{\circ} 30'$ north, and longitude $98^{\circ} 8'$ west, where the Eskimo found her. Hall collected one hundred and fifty relics of the ill-fated expedition which had belonged to the

officers and crews. It was also reported by Eskimos, through the American whalers operating in Hudson Bay, that one officer (Captain Fitzjames probably) and a companion were living as late as 1864, and that there were books and records in possession of the north-western tribes of Eskimos.

"These reports found little credence in England, but it was otherwise in the United States; and among other believers was a fine army officer, the late Lieutenant Schwatka, who, with Mr. W. H. Gilder as second in command, and two American companions, resolved on the difficult and even dangerous enterprise of testing their accuracy. In August, 1878, a Yankee whaler deposited themselves and their stores, provisions and equipments at a point named 'Camp Daly,' in latitude $63^{\circ} 40'$ north, and not far from Chesterfield Inlet, Hudson Bay. They passed the winter there, and on the 1st of April, 1879, they started out on their long and arduous journey to King William Island, accompanied by thirteen Eskimos, including women and children, with several kayaks or canoes and three heavily-laden sledges, drawn by forty-two native dogs, carrying about a month's provisions for the party, consisting principally of bread and meat landed from the whaler, and their store of firearms and ammunition."

It would occupy too much space to give even an abridged narrative of the work of these Americans on this wonderful journey. Suffice it to say that, with the aid of their Eskimo friends, they made a thorough and exhaustive search of King William Island, and of the country at the estuary of the Great Fish River, Montreal Island, and of the other relative points reported upon by Dr. Rae, Captain McClintock, and by the eastern Eskimos to themselves and Captain Hall. They met many Eskimos and discovered several probably despoiled graves, many human bones and other relics of the unfortunate expedition; but no records whatever, except one placed by McClintock in a cairn on "King William," on 3rd June, 1859. Five months were spent on the island.

"The Schwatka expedition is memorable for having achieved a very remarkable and almost unprecedented sledge journey of over three thousand miles, in course of which it was absent from its base of operations eleven months and twenty days. It is difficult to say which most to admire—the daring of the plan or the skill that wrought its success. It was the first expedition which deliberately and systematically placed its reliance for the support of its human members and draught animals on the game resources of the country. It was the first, moreover, in which the white men lived almost wholly on the same food as their Eskimo allies. So well and thoroughly did it do its work that we may venture the assertion that probably not a single man of the Franklin expedition now lies with unbleached bones on the inhospitable snow—for each a decent grave had been dug. Where nature had not anticipated their efforts, or the retreating crews themselves performed the last sad office, and paid the last sad tribute of respect to their comrades, it was discharged by Lieutenant Schwatka and his companions. From the incomplete condition of the skeletons discovered, their inextricable confusion and the wide area over which they were scattered, it was difficult to compute with any certainty the number interred, and while some estimated it as high as forty, others placed it as low as seventeen.

"An impenetrable shroud of mystery has forever descended upon the latest struggle and sufferings of Franklin's ill-fated crews. We can but think of them as wan and haggard skeletons rather than men, dragging their slow steps across the rough and difficult ice, growing fainter, feebler every hour, and at last succumbing to the fatal influence of the Arctic climate. No loving wife, mother or sister to receive their last sigh—alone in that fearfully depressing Polar silence they passed away to the Great Beyond!"

Admiral Sir Frederick Richards, R.N., has stated that comment on Schwatka's remarkable undertaking seemed superfluous, for the reason, so far as he knew, it stood un-

rivalled in the annals of Arctic, or indeed any other, enterprise of modern times, and one scarcely knew which to admire most, the boldness and audacity of its conception or the unswerving devotion and perseverance which brought it to a successful conclusion. Dr. Hayes, himself distinguished as an Arctic explorer, remarked on the occasion of the Lieutenant's reception in New York after his return, that "we now knew all that we shall ever know of the fate of the one hundred and twenty-nine men who went forth, buoyant and strong, to play their heroic part in that great drama of Polar exploration which had long been their country's pride. The problem which had engaged the loving perseverance of Lady Franklin, the effort and energy of so many gallant and generous spirits, has been solved. We know how the explorers perished, and where, and with some reasonable degree of certainty, when. All honour to their memories! They and their brave leaders deserved well of the commonwealth. It is the legacy of example and inspiration which such men bequeath that makes a nation rich."

"Near the camp where Captains Crozier and Fitzjames landed and rested after abandoning their ice-beset ships on 22nd April, 1848, and where they deposited their only record, found by Lieutenant Hobson eleven years later, Schwatka discovered an open grave which contained the skull and some bones, which, from the fact of their finding a silver medal therein, which had been awarded to John Irving, midsummer 1830, as a second mathematical prize at the Royal Naval College, and other relics, they concluded were the remains of Lieutenant John Irving, of H. M. ship *Terror*. These remains were accordingly carefully gathered together and taken from Irving Bay, King William Island, where they were found, to New York, and thence shipped to Edinburgh, Scotland, his native city.

"Shortly after their arrival in Edinburgh Irving's bones were honoured by a public funeral to their place of interment among his kindred, in the Dean cemetery. This took place

on the 7th January, 1881. Each of the regiments stationed in the Castle garrison was represented by a detachment of twenty-eight men (the 21st Hussars, the Royal Artillery, and the 71st Highlanders), and Her Majesty's ship *Warden*, at Leith, furnished a contingent of one hundred Royal Marines and sailors. The procession was also accompanied by the military band and pipers of the 71st Regiment, while a vast concourse of sightseers thronged the entire route from the starting point in Great King Street to the Dean Cemetery. The coffin was of solid oak, and on the lid was a brass plate simply inscribed 'John Irving, Lieutenant R.N. Born 1815. Died 1848.' The chief naval and military authorities were present, and also many of the leading citizens of Edinburgh, and nothing was left undone that could add to the dignity and impressiveness of the scene. Lieutenant Irving, it may be added, was the fourth son of the late Mr. John Irving, writer to the *Signet*, a schoolfellow and friend of Sir Walter Scott."

For the special benefit of future Arctic explorers, ignorant of the canon formulated by the eminent navigator, the late Admiral Sir Edward Parry, as a result of his observations during his first and second expeditions, I would now quote therefrom: "The eastern coast of any portion of Polar land, or what is the same thing, the western sides of seas or inlets having a tendency at all approaching north and south, are at a given season of the year generally more encumbered with ice than the shores with an opposite aspect. Ships should be kept disengaged from ice so that they may be at liberty to take advantage of the occasional openings in-shore, by which alone the navigation of these shores is to be performed with any degree of certainty. Time and later experience have tended to confirm these views. One very noticeable instance in this connection was that of Captain McClure. Had he, on reaching Cape Crozier (Baring Island) in September, 1851, made a bold push for Cape Hay (Melville Island), instead of hugging the coast and thereby

becoming shut in by ice, which caused the ship (*Investigator*) to ground, and later to winter in Mercy Bay, he would in all probability have got to open water, or have entered and floated eastward with the main pack, and have ultimately succeeded in accomplishing his own discovered northern North-West Passage, and taken his ship safely to England."

In 1875 Captain Allen Young, one of McClintock's volunteer associates of 1857-9, made a gallant attempt to sail through Peel and Franklin straits, but he was forced back by an impassable barrier of ice in Peel Strait, latitude $72^{\circ} 14'$ north. It was his intention when he got there to pass on the east side of King William Island. *This was another case of failure caused by neglecting to observe Parry's ice canons.* Had Young proceeded *via* Prince Regent Inlet and Bellot Strait he would in all probability have taken his ship through by the Franklin North-West Passage to England. Even McClintock firmly believed that the three or four mile-wide field of ice encountered by him off the west end of Bellot Strait in September, 1858, was the only obstacle which prevented him from taking the *Fox* southward to the Great Fish River, passing east of King William Island, and from thence to a wintering position on Victoria Land, instead of compelling him to lay up in the snug little anchorage which he named Port Kennedy, in honour of the discoverer of Bellot Strait. This he considered an appropriate and agreeable duty, as it is decidedly the port of his predecessor's discovery.

Before closing these (to me) old and well-known, but always interesting, Arctic reminiscences of former days, compiled mainly from the graphic descriptions of McClintock and Schwatka, I would fain hope that their introduction here will have some effect, at least, in the way of enhancing the reader's pleasure in the perusal and use of the combined volume as a whole. I would further express an opinion entertained by me ever since I have carefully read and calmly

considered the works in question. We know that three men belonging to the Franklin ships died at Beechey Island in 1846, and their graves are there to this day. From Graham Gore's "all well" record of 24th May, 1847, I think we may rightly infer that no death had occurred during the previous thirteen months; but between that date and the abandonment of the ships, only eleven months later, the Crozier and Fitzjames record of 25th April, 1848, informs us that no less than nine of the twenty-one commissioned officers of the expedition, including Sir John Franklin himself on 11th June, 1847, and twelve additional men, had passed away. During these eleven months the ice-beset ships had drifted but some thirty statute miles south of their position on 24th May, 1847, and when they were abandoned on 22nd April they were still five leagues distant from Point Victory, where they landed. Only one undoubted grave, partly opened and supposed to contain the already referred to remains of Lieutenant Irving, of the *Terror*, was found in that vicinity, where he may have died, or on board ship shortly before their departure.

Both McClintock and Hobson made a close but somewhat hurried examination of the west coast of King William Island, and the former devoted some attention to the mainland, from Point Ogle to and on Montreal Island itself, without discovering a single grave. A skeleton in a boat and a few other human relics only were met with. About ten or eleven years subsequently, Schwatka, apart from his Montreal and other continental operations, conducted a very thorough and systematic examination of King William Island, which resulted in the finding of a considerable quantity of human bones over a large area, while I think Irving's grave is the only undoubted one discovered. If there had been anything like an improvised cemetery on the island, as would probably have been the case had the remains of the Admiral and his eight officers and twelve additional men been taken there for interment,

Schwatka would undoubtedly have discovered some definite traces thereof. Owing to the many trying obstacles that would have to be surmounted in taking dead men for such long distances over very hummocky ice, and the difficulty that would have been experienced in digging graves in hard frozen ground, taken in conjunction with Sir John's well-known kind and considerate disposition, I think it may be safely taken for granted that under the then existing circumstances this unnecessary and exacting labour had never been demanded from the already suffering crews. On the contrary, I firmly believe that when he found his own departure was near at hand, he directed his successor in the command that he himself, when gone, together with all those who might be called hence from their ice-beset ships, should be committed to the deep of the seaman's native element, earth's great ocean, in which myriads of Britannia's children repose until that day when the mighty sea shall give up its dead.

As no published account has yet reached Winnipeg of the undoubtedly valuable scientific work, in connection with the Magnetic Pole, performed by that able, enterprising and energetic Norwegian, Captain Amundsen, who has since succeeded in sailing over (not discovering, as some papers stated), and in his small ship accomplishing in its entirety, the "Franklin" and only feasible North-West Passage, we must content ourselves, in the meantime, by expressions of deep admiration for, and the heartiest congratulations on, his very successful achievement.

In the preparation of the foregoing paper on the birds and eggs of the Anderson River region, the writer consulted a "History of North American Birds" by Professors Baird, Brewer and Ridgway, and in regard to the collection of birds and eggs made by him in New Caledonia, B.C.; and in Cumberland, lower Saskatchewan, Major Bendire's "Life Histories of North American Birds," has received similar attention, while Professor John Macoun's interest-

ing "Catalogue of Canadian Birds" has proved very useful. Chief Trader B. R. Ross's "List of Birds and Eggs Observed in the Mackenzie River District," and Dr. Frank Russell's "Explorations in the Far-North," have not been entirely overlooked. The references to the unfortunate Franklin Expedition have been mainly compiled from Admiral McClintock's narrative, and from Colonel Gilder's account of the overland journey by Lieutenant Schwatka and himself in search of their relics on King William Island.

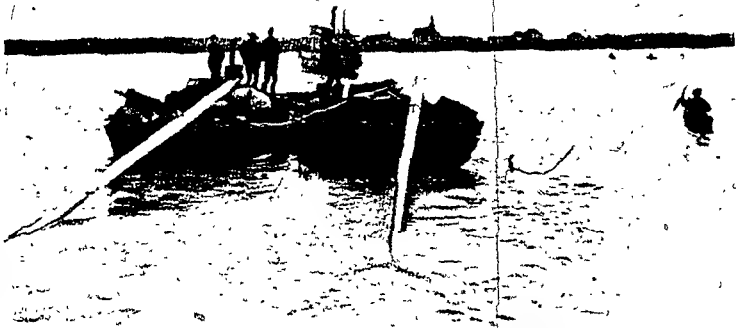
In conclusion, I would here make one or two brief references to the Anderson and other Hudson's Bay Collections, made by officers of the Company in the earlier sixties of the nineteenth century:—Late in the autumn of 1862, the lamented Professor S. F. Baird, at that time Assistant Secretary of the Smithsonian Institution at Washington, wrote me that the reading of the List of Birds and Eggs collected on the Anderson, season 1862, was like a dream, as it contained a reiteration of species which he had always considered as the "rarest among the rare." This, although good, was but the beginning of that probably unexcelled (individual) Anderson Collection, which that year was put up in ten; but which for 1865 (our best and last season on Franklin Bay), comprised thirty-five boxes of zöological, ethnological and other objects of Natural History.

I beg to quote from Secretary Henry's Report of the Smithsonian Institution for the year 1866: "British America explorations and collection of specimens by officers of the Hudson's Bay Company, in continuation of those of former years, especially those of Mr. R. MacFarlane, on the Anderson River; and of Mr. William Brass, at Fort Halkett; James Flett, at La Pierre's House; C. P. Gaudet, at Fort Good Hope; William L. Hardisty, at Fort Simpson; Strachan Jones, at Fort Rae; James Sibbiston, James McDougall, and Reverend Robert Macdonald, at Fort Yukon; John Reid, at Big Island; James Lockhart, at Fort Resolution, and Donald Gunn, west of Lake Winnipeg; also in

Labrador, Messrs. Henry Connolly and Donald A. Smith, now Governor and Lord Strathcona and Mount Royal, G.C.M.G.

It should also be put on record that in the important matter of inland transportation, and in many other ways, the Hudson's Bay Company treated the Smithsonian Institution and their visitor representative, the late Robert Kennicott, in the most generous and liberal manner, which annually elicited the heartiest thanks of the Secretary and Board of Regents at Washington.

R. MACFARLANE.



Fort Resolution, Great Slave Lake



Fort Good Hope



APPENDIX

TREATY NO. 8.

ARTICLES OF A TREATY made and concluded at the several dates mentioned therein, in the year of Our Lord one thousand eight hundred and ninety-nine, between Her Most Gracious Majesty the Queen of Great Britain and Ireland, by Her Commissioners the Honourable David Laird, of Winnipeg, Manitoba, Indian Commissioner for the said Province and the North-West Territories; James Andrew Joseph McKenna, of Ottawa, Ontario, Esquire, and the Honourable James Hamilton Ross, of Regina, in the North-West Territories, of the one part; and the Cree, Beaver, Chipewyan and other Indians, inhabitants of the territory within the limits hereinafter defined and described, by their Chiefs and Headmen, hereunto subscribed, of the other part:—

WHEREAS, the Indians inhabiting the territory hereinafter defined have, pursuant to notice given by the Honourable Superintendent-General of Indian Affairs in the year 1898, been convened to meet a Commission representing Her Majesty's Government of the Dominion of Canada at certain places in the said territory in this present year 1899, to deliberate upon certain matters of interest to Her Most Gracious Majesty, of the one part, and the said Indians of the other.

AND WHEREAS, the said Indians have been notified and informed by Her Majesty's said Commission that it is Her desire to open for settlement, immigration, trade, travel, mining, lumbering; and such other purposes as to Her Majesty may seem meet, a tract of country bounded and described as hereinafter mentioned, and to obtain the consent thereto of Her Indian subjects inhabiting the said tract, and to make a treaty, and arrange with them, so that there may be peace and good will between them and Her Majesty's other subjects, and that Her Indian people may know and be assured of what allowances they are to count upon and receive from Her Majesty's bounty and benevolence.

AND, WHEREAS, the Indians of the said tract, duly convened in council and at the respective points named hereunder, and being requested by Her Majesty's Commissioners to name certain Chiefs and Headmen who should be authorized on their behalf to conduct such negotiations and sign any treaty to be founded thereon, and to become responsible to Her Majesty for the faithful performance by their respective bands of such obligations as shall be assumed by them, the said Indians have therefore acknowledged for that purpose the several Chiefs and Headmen who have subscribed hereto.

AND WHEREAS, the said Commissioners have proceeded to negotiate a treaty with the Cree, Beaver, Chipewyan and other Indians, inhabiting the district hereinafter defined and described, and the same has been agreed upon and concluded by the respective bands at the dates mentioned hereunder, the said Indians DO HEREBY CEDE, RELEASE, SURRENDER AND YIELD UP to the Government of the Dominion of Canada, for Her Majesty the Queen and her successors for ever, all their rights, titles and privileges whatsoever, to the lands included within the following limits, that is to say:—

Commencing at the source of the main branch of the Red Deer River in Alberta, thence due west to the central range of the Rocky Mountains, thence north-westerly along the said range to the point where it intersects the 60th parallel of north latitude, thence east along said parallel to the point where it intersects Hay River, thence north-easterly down said river to the south shore of Great Slave Lake, thence along the said shore north-easterly (and including such rights to the islands in said lakes as the Indians mentioned in the treaty may possess), and thence easterly and north-easterly along the south shores of Christie's Bay and McLeod's Bay to old Fort Reliance, near the mouth of Lockhart's River, thence south-easterly in a straight line to and including Black Lake, thence south-westerly up the stream from Cree Lake, thence including said lake south-westerly along the height of land between the Athabasca and Churchill Rivers, to where it intersects the northern boundary of Treaty Six, and along the said boundary easterly, northerly and southwesterly, to the place of commencement.

AND ALSO the said Indian rights, titles and privileges whatsoever to all other lands wherever situated, in the North-West Territories, British Columbia, or in any other portion of the Dominion of Canada.

TO HAVE AND TO HOLD the same to Her Majesty the Queen and Her successors for ever.

And Her Majesty the Queen HEREBY AGREES with the said Indians that they shall have right to pursue their usual vocations of hunting, trapping and fishing throughout the tract surrendered as heretofore⁴² described, subject to such regulations as may from time to time be made by the Government of the country, acting under the authority of Her Majesty, and saving and excepting such tracts as may be required or taken up from time to time for settlement, mining, lumbering, trading or other purposes.

And Her Majesty the Queen hereby agrees and undertakes to lay aside reserves for such bands as desire reserves, the same not to exceed in all one square mile for each family of five for such number of families as may elect to reside on reserves, or in that proportion for larger or smaller families; and for such families or individual Indians as may prefer to live apart from band reserves, Her Majesty undertakes to provide land in severalty to the extent of 160 acres to each Indian, the land to be conveyed with a proviso as to non-alienation without the consent of the Governor-General-in-Council of Canada, the selection of such reserves, and lands in severalty, to be made in the manner following, namely, the Superintendent-General of Indian Affairs shall depute and send a suitable person to determine and set apart such reserves and lands, after consulting with the Indians concerned as to the locality which may be found suitable and open for selection.

Provided, however, that Her Majesty reserves the right to deal with any settlers within the bounds of any lands reserved for any band as She may see fit; and also that the aforesaid reserves of land, or any interest therein, may be sold or otherwise disposed of by Her Majesty's Government, for the use and benefit of the said Indians entitled thereto, with their consent first had and obtained.

It is further agreed between Her Majesty and Her said Indian subjects that such portions of the reserves and lands above indicated as may at any time be required for public works, buildings, railways, or roads of whatsoever nature, may be appropriated for that purpose by Her Majesty's Government of the Dominion of Canada, due compensation being made to the Indians for the value of any improvements thereon, and an equivalent in land, money or other consideration for the area of the reserve so appropriated.

And with a view to show the satisfaction of Her Majesty with the behaviour and good conduct of Her Indians, and in extinguishment of all their past claims, She hereby, through Her Commissioners, agrees to make each Chief a present of thirty-two dollars in cash, to each Headman twenty-two dollars, and to every other Indian of whatever age, of the families represented at the time and place of payment, twelve dollars.

Her Majesty also agrees that next year, and annually afterwards for ever, She will cause to be paid to the said Indians in cash, at suitable places and dates, of which the said Indians shall be duly notified, to each Chief twenty-five dollars, each Headman, not to exceed four to a large Band and two to a small Band, fifteen dollars, and to every other Indian, of whatever age, five dollars, the same, unless there be some exceptional reason, to be paid only to heads of families for those belonging thereto.

FURTHER, Her Majesty agrees that each Chief, after signing the treaty, shall receive a silver medal and a suitable flag, and next year, and every third year thereafter, each Chief and Headman shall receive a suitable suit of clothing.

FURTHER, Her Majesty agrees to pay the salaries of such teachers to instruct the children of said Indians as to Her Majesty's Government of Canada may seem advisable.

FURTHER, Her Majesty agrees to supply each Chief of a Band that selects a reserve, for the use of that Band, ten axes, five hand-saws, five augers, one grindstone, and the necessary files and whetstones.

FURTHER, Her Majesty agrees that each Band that elects to take a reserve and cultivate the soil, shall, as soon as convenient after such reserve is set aside and settled upon, and the Band has signified its choice and is prepared to break up the soil, receive two hoes, one spade, one scythe and two hay forks for every family so settled, and for every three families one plough and one harrow, and to the Chief, for the use of his Band, two horses or a yoke of oxen, and for each Band potatoes, barley, oats and wheat (if such seed be suited to the locality of the reserve), to plant the land actually broken up, and provisions for one month in the spring for several years while planting such seeds; and to every family one cow, and every Chief one bull, and one mowing machine and one reaper for the use of his Band when it is ready for them; for such families as prefer to raise stock instead of cultivating the soil, every family of five persons, two cows, and every Chief two bulls and two

mowing machines when ready for their use, and a like proportion for smaller or larger families. The aforesaid articles, machines and cattle, to be given once for all for the encouragement of agriculture and stock raising; and for such Bands as prefer to continue hunting and fishing, as much ammunition and twine for making nets annually as will amount in value to one dollar per head of the families so engaged in hunting and fishing.

And the undersigned Cree, Beaver, Chipewyan and other Indian Chiefs and Headmen, on their own behalf and on behalf of all the Indians whom they represent, DO HEREBY SOLEMNLY PROMISE and engage to strictly observe this Treaty, and also to conduct and behave themselves as good and loyal subjects of Her Majesty the Queen.

THEY PROMISE AND ENGAGE that they will, in all respects, obey and abide by the law; that they will maintain peace between each other, and between themselves and other tribes of Indians, and between themselves and others of Her Majesty's subjects, whether Indians, half-breeds or whites, this year inhabiting and hereafter to inhabit any part of the said ceded territory; and that they will not molest the person or property of any inhabitant of such ceded tract, or of any other district or country, or interfere with or trouble any person passing or travelling through the said tract or any part thereof, and that they will assist the officers of Her Majesty in bringing to justice and punishment any Indian offending against the stipulations of this Treaty or infringing the law in force in the country so ceded.

REPORT OF SENATE COMMITTEE, 1888.

The Select Committee appointed by your Honourable House to inquire into the resources of the Great Mackenzie Basin and the country eastward to Hudson Bay, have the honour to make their Third Report as follows:

REGARDING NAVIGATION.

1st. The extent of the scope of the inquiry covers one million two hundred and sixty thousand square statutory miles, which area includes none of the islands of the Arctic Archipelago.

2nd. Its coast line on the Arctic Ocean and Hudson Bay

measures about 5,000 miles, which estimate does not include the coast lines of inlets or deeply indented bays.

3rd. That over one-half of this coast line is easily accessible to whaling and sealing crafts.

4th. The navigable coast lines of the larger lakes of the region in question amount to about 4,000 miles, while its total lacustrine area probably exceeds that of the eastern Canadian-American chain of great lakes.

5th. That there is a river navigation of about 2,750 miles, of which 1,390 miles is suitable for stern-wheel steamers, which with their barges may carry three hundred tons; the remaining 1,360 miles being deep enough for light-draught sea-going vessels.

6th. That there is a total of about 6,500 miles of continuous lake coast and river navigation, broken only in two places.

7th. That the two breaks in question are upon the Great Slave and Athabasca rivers, the first being now overcome by a 20-mile waggon road from Fort Smith southwards on the Great Slave River, and the latter being a stretch of 70 miles on the Athabasca, of questionable navigation above Fort McMurray, down which flat boats or scows descend, but cannot ascend, and which about 50 miles of waggon road would overcome, while some improvement of the rapids might render the whole river navigable.

8th. That with suitable steam crafts this river and lake navigation may be connected with Victoria and Vancouver by way of the mouth of the Mackenzie, the Arctic Ocean and Behring Straits and Sea, and it is now connected on the south by 90 miles of waggon road, between Athabasca Landing and Edmonton, with navigable water in the Saskatchewan River.

ARABLE AND PASTORAL LANDS.

9th. That within the scope of the Committee's inquiry there is a possible area of 656,000 square miles fitted for the growth of potatoes, 407,000 square miles suitable for barley, and 316,000 square miles suitable for wheat.

10th. That there is a pastoral area of 860,000 square miles, 26,000 miles of which is open prairie with occasional groves, the remainder being more or less wooded; 274,000 square miles, including the prairie, may be considered as arable land.

11th. That about 400,000 square miles of the total area is useless for the pasturage of domestic animals or for cultivation.

This area comprising the Barren Grounds and a portion of the lightly wooded region to their south and west.

12th. That throughout this arable and pastoral area latitude bears no direct relation to summer isotherms, the spring flowers and the buds of deciduous trees appearing as early north of Great Slave Lake as at Winnipeg, St. Paul and Minneapolis, Kingston or Ottawa, and earlier along the Peace, Liard and some minor western affluents of the great Mackenzie River, where the climate resembles that of western Ontario.

13th. That the native grasses and vetches are equal and in some districts superior to those of eastern Canada.

14th. That the prevailing south-west summer winds of the country in question bring the warmth and moisture which render possible the far northern cereal growth, and sensibly affect the climate of the region under consideration as far north as the Arctic circle and as far east as the eastern rim of the Mackenzie Basin.

FISHERIES, FORESTS AND MINES.

15th. The immense lacustrine area of the eastern and northern portions of the area under consideration implies, from the evidence given regarding the quantity and quality of fresh water food fishes, the future supply of a great portion of the North American continent; while, though there has been obtained less evidence regarding sea fish, yet the following have been found on the northern and eastern coast, within the scope of the present inquiry, viz.: salmon, on four of the rivers emptying into Hudson Bay on its western shore, and in all the rivers flowing into the Arctic Ocean, except the Mackenzie, where an entirely different but also valuable species, the *Salmo Mackenziei*, having the local name of the *Inconnu*, exists in great numbers. The capeling is found on the coast of the Arctic Ocean and Hudson Bay, thus implying the presence of cod upon banks near by, and the rock cod has been frequently taken. The Greenland or harp seal, and the gray square flipper seal are common to the eastern coasts, while the present favourite whaling grounds of the New England whalers are Hudson Bay, Fox Channel and Boothia Bay. These animals are all found, with the walrus and porpoise, off the mouths and in the estuary of the Mackenzie, as well.

16th. The forest area has upon it a growth of trees well suited for all purposes of house and ship building, for mining, railway and bridging purposes, far in excess of its own needs

and of great prospective value to the treeless regions of Canada and the United States to the south, the growth on the Laurentian formation being scant, but the alluvial portion has upon it (on the river of its name and elsewhere) the "Liard," a balsam poplar, sometimes called Balm of Gilead or rough bark poplar, 120 feet high, with a stump diameter of 5 to 6 feet. The *white spruce*, 150 feet high, with a stump diameter of 4 to 5 feet; the *larch*, of about the same size, and the *banksian pine*, whose straight stem is often 100 feet long, with only 2 feet of diameter at the stump.

17th. Of the mines of this vast region little is known of that part east of the Mackenzie River and north of Great Slave Lake. Of the western affluents of the Mackenzie enough is known to show that on the headwaters of the Peace, Liard and Peel rivers there are from 150,000 to 200,000 square miles which may be considered auriferous, while Canada possesses west of the Rocky Mountains a metalliferous area, principally of gold-yielding rocks, thirteen hundred miles in length, with an average breadth of four to five hundred miles, giving an area far greater than that of the similar mining districts of the neighbouring Republic.

18th. In addition to these auriferous deposits, gold has been found on the west shore of Hudson Bay, and has been said to exist in certain portions of the Barren Grounds. Silver on the Upper Liard and Peace rivers, copper upon the Coppermine River, which may be connected with an eastern arm of Great Bear Lake by a tramway of 40 miles; iron, graphite, ochre, brick and pottery clay, mica, gypsum, lime and sandstone, sand for glass and moulding, and asphaltum, are all known to exist, while the petroleum area is so extensive as to justify the belief that eventually it will supply the larger part of this continent and be shipped from Churchill or some more northern Hudson Bay port to England.

19th. Salt and sulphur deposits are less extensive, but the former is found in crystals equal in purity to the best rock salt and in highly saline springs, while the latter is found in the form of pyrites, and the fact that these petroleum and salt deposits occur mainly near the line of division between deep water navigation and that fitted for lighter craft, give them a possible great commercial value. The extensive coal and lignite deposits of the Lower Mackenzie and elsewhere will be found to be of great value when the question of reducing its iron ores and the transportation of the products of this vast

region have to be solved by steam sea-going or lighter river craft.

20th. The chief present commercial product of the country is its furs, which, as the region in question is the last great fur preserve of the world, are of very great present and prospective value, all the finer furs of commerce being there found, and the sales in London yearly amounting to several millions of dollars.

21st. The Indian population is sparse, and the Indians, never having lived in large communities, are peaceable, and their general character and habits, as given by witnesses, justify a hope that the development of the country, as in the case of the Indians of British Columbia, may be aided by them without great danger of their demoralization and with a reasonable hope that, as in the case of the Indians mentioned, their condition may be improved.

Your Committee, desiring to refer briefly to the evidence upon which they have based these conclusions, may explain that very early in their investigations they became convinced that very little more was known of the northern and eastern portion of the area committed to them for investigation than was known of the interior of Africa or Australia. Arctic explorers had indeed traversed its coast line and descended two of the rivers which, east of the Mackenzie, flow into the Arctic Sea, but the object sought by them was one which had no relation to that of the present inquiry and it is only incidentally that their records are now valuable. The knowledge of missionaries and officers of the Hudson's Bay Company is chiefly confined to the watercourses and the great lakes, while scientific exploration has not as yet extended north of Great Slave Lake.

In referring again to the navigation of this region all the evidence has agreed as to the great extent of unbroken navigation, and this fact has been of great use to the Hudson's Bay Company, who have always used the waterways, even when circuitous and difficult, rather than resort to land carriage, and their inland posts to as far north as the Arctic circle are now supplied from their central depot at Fort Garry, with only 114 miles of land carriage, four of this being by tramway at the Grand Rapids of the Saskatchewan, ninety miles of waggon transport from Edmonton to Athabasca Landing, thence by steamer and flatboat to Fort Smith on the Great Slave River, where twenty miles of waggon road connects the shallow with deep water navigation, and the steamer *Wrigley* distributes

them to the various posts down to the mouth of the Mackenzie, just above its estuary, where the river is said to be six miles wide, and up Peel River, which joins the Mackenzie near that point, to Fort Macpherson on that gold-bearing stream. The great lakes which receive the drainage of this vast region and give an equal flow to the Mackenzie, all have deep water navigation, and like most lakes of the Laurentian formation are studded with islands.

The most southern source of the great Mackenzie River is a stream fed by the glaciers of Mounts Hooker and Brown, two of the highest of the Rocky Mountain chain, in latitude $52^{\circ} 30'$, and this soon becomes a navigable stream, preserving that character, except at the breaks mentioned, during the nearly 2,500 miles of its course to the Polar Sea. As already mentioned, these western affluents will form valuable links as a means of taking in machinery and mining supplies to the upper waters of the Peace and Liard rivers, which are now inaccessible for heavy machinery from the west coast, and the cost of taking in provisions, makes, in mining and prospecting efforts, a serious desideratum. The navigation upon the Liard River also will be an important factor in the future food supply to the great mining region of the Upper Yukon and Peel rivers.

A reference to the valuable evidence obtained by your Committee will show that navigation from Behring Straits to the mouth of the Mackenzie, and probably as far east as Wollaston Land, may be had for three months in each year, the soundings given on the Admiralty Chart of that portion of the Arctic Sea revealing an average depth of about 20 fathoms, which is a considerable depth in what is known to be generally a shallow sea. The western branch of the estuary of the Mackenzie is said to be the outlet which has the deepest waters, and it is respectfully submitted that much good might accrue were the Dominion Government party now working its way from the Yukon towards Peel River and the Mackenzie, to descend either of these streams and examine the western and other branches of the estuary of the Mackenzie.

To convey to your Honourable House the distances which separate the navigable waters of the Mackenzie Basin from the eastern and western sea coasts and from navigable rivers and railways to the south and south-east, the following table of distances has been taken from the evidence. The lengths are in straight lines as follows:

From the head of Great Slave Lake to head of Chesterfield Inlet, 320 miles; from the head of Athabasca Lake to the harbour of Churchill, 440 miles; from Fort McMurray, at the junction of the Clearwater with the Athabasca, below the 70 miles of questionable navigation, to the following places on the Saskatchewan: Prince Albert, 300 miles; Fort Pitt, 220 miles; Victoria, 179 miles; Edmonton, 225 miles; from Calgary, on the Canadian Pacific Railway, to Athabasca Landing, on the Athabasca River, 250 miles; from head of Little Slave Lake to Peace River Landing in the Peace River, 65 miles; from Hazelton, on the Skeena River, to Peace River in the Pass, 150 miles; from Fort Mumford, on the Stikeen River, to Fort Liard on the Liard River, 370 miles.

A good deal of difficulty has been experienced by the Committee in endeavoring to obtain the exact catch of furs in the region under consideration, and no definite or direct information has been obtained; they have, however, obtained lists of furs offered for sale in 1887, in London, by the Hudson's Bay Company and C. M. Lampson & Co., the consignee of many of the furs of British North America, and from these lists they find the following to be a summary of one year's catch:—

Otter	14,439
Fisher	7,192
Fox- (silver)	1,967
Fox (cross)	6,785
Fox (red)	85,022
Fox (white)	10,257
Fox (blue)	1,440
Fox (kitt)	290
Lynx	14,520
Skunk	682,794
Marten	98,342
Mink	376,223
Beaver	104,279
Musquash	2,485,368
Extra black Musquash	13,944
Wolf	7,156
Wolverine	1,581
Bear (all kinds)	15,942
Musk Ox	198
Badger	3,739
Ermine	4,116
Swan	57
Rabbit	114,824
Hair Seal (dry)	13,478
Sable	3,517
Fox (gray)	31,597

It will be seen by those who have a knowledge of the great value of these rich northern furs, a large proportion of which may be presumed to have come from the Mackenzie Basin, how large and important that trade has been, and it is expedient that, without unduly interfering with the rights of settlers or the usual privileges of Indians, this great fur trade should be fostered and even made a source of direct revenue to the Dominion.

The Right Reverend Bishop Clut, in his evidence, called attention to the damage to this interest caused by the use of "poison," which is strychnia of the most powerful kind, in the capture of such animals as the fox or wolf. He deprecates its use, first on account of the danger to those using it and from the fact that it causes useless destruction, inasmuch as the foxes and wolves that swallow the frozen bait have time to run and die far beyond where they may be found, and in the case of other animals for which it is not intended, it destroys directly by eating the bait, and indirectly by the eating of the animals which have been poisoned by it.

Again, there is great danger of some species of fur-bearing animals becoming extinct by the greater ease in their capture, such as the beaver, which many years ago became almost extinct in the United States when fashion necessitated the exclusive use of its fur in felt and other hats, and more recently the same prospect of extirpation threatened the mink which now threatens the south sea or fur seal; these considerations pointing to the expediency of the Government making a measure of protection a source of revenue by the leasing of certain fur districts with a limitation as to the catch of certain kinds of their furs.

Of the fresh water food fishes of the region, Back's "grayling," an excellent species not prevalent elsewhere, seems to be found everywhere in its rivers, and even west of the Rocky Mountains; but the staple product of its lakes and large rivers seems to be whitefish of great weight and excellent flavor, and trout often reaching forty pounds in weight, and evidence goes to show that the farther north the greater the yield of fish till the quantity becomes enormous. As an illustration, the following is given from the evidence of Prof. Macoun, who quotes Sir John Richardson to the effect that one of the early overland Franklin expeditions took fifty thousand whitefish on a north-eastern arm of Great Bear Lake, and Sir John Richardson also states that the great lake trout swarm in all the northern great lakes.

In regard to the salmon fisheries, it would appear from the evidence that salmon are abundant in the rivers and along the coast of the north-west side of Hudson Bay as well as in the rivers of the northern shores of the continent. Your Committee consider it advisable that means should be adopted to ascertain more accurately the extent and value of the salmon fisheries of these regions, with a view to utilizing them for the purposes of commerce and for the revenue which they may afford.

The seas adjoining the great territory which your Committee has had under investigation are frequented by whales of different species, walruses, narwhals and a variety of seals. All these animals are valuable for their oil, but the large species of whales have heretofore been most sought for. Only a few years ago these animals had a much more extensive range than at the present time. Owing to improvements in navigation and methods of capture, they have, of late years, fallen an easier prey to their pursuers and have taken shelter in the less frequented seas of the northern coasts of Canada. Now they are being pursued to their last retreat by foreign whalers, and some species are threatened with complete extinction in a few years if this condition continues. It is to be borne in mind that whales are long lived and slow-breeding animals. The American whalers attack them with harpoons, explosive bombs and lances, fired from large swivel-guns carried on steam launches, instead of the old-fashioned weapons thrown by hand from rowboats. These methods not only destroy the whales with greater facility, but inspire the survivors with such terror that they seek the most distant and inaccessible parts of the northern seas and have entirely disappeared from the waters in which they lived only a few years ago.

Your Committee are informed that the Russian Government claim jurisdiction over the whale fisheries of the White Sea, and exact a heavy license from each vessel engaged in the fishing, and that the Alaska Fur Company asserts a similar authority over the seal fisheries of Behring Sea, both of which are open to the ocean, while Hudson Bay, Boothia Bay and other bays and channels in the northern part of the Dominion, which are resorted to by foreign whalers, may be considered as closed seas, being almost completely surrounded by our own territory. Your Committee would, therefore, recommend that some measures may be adopted with a view to protecting the whale fisheries of our northern waters and at the same time of deriving a revenue therefrom. Should this not be done, then as soon

as the larger whales shall have become extinct, the slaughter of our smaller oil-producing mammals will commence, and as these creatures live in shallow water or nearer shore, further encroachments on our rights will probably result.

The evidence submitted to your Committee points to the existence in the Athabasca and Mackenzie valleys of the most extensive petroleum field in America, if not in the world. The uses of petroleum, and consequently the demand for it by all nations, are increasing at such a rapid ratio that it is probable this great petroleum field will assume an enormous value in the near future and will rank among the chief assets comprised in the Crown domain of the Dominion. For this reason your Committee would suggest that a tract of about 40,000 square miles be, for the present, reserved from sale, and that as soon as possible its value may be more accurately ascertained by exploration and practical tests; the said reserve to be bounded as follows: Easterly by a line drawn due north from the foot of the Cascade Rapids on Clearwater River to the south shore of Athabasca Lake; northerly by the said lake shore and the Quatre Fourche and Peace rivers; westerly by Peace River and a straight line from Peace River Landing to the western extremity of Lesser Slave Lake, and southerly by said lake and the river discharging it to Athabasca River and Clearwater River as far up as the place of beginning.

Your Committee regret that they have made so long a report, but trust that an excuse will be found in the fact that upon a map of similar projection and scale the region in question occupies an area greater than the Australian Continent or two-thirds of Europe, covering part of the British Islands, Norway, Sweden, Denmark, Germany, Austria and a part of France and Russia.

Your Committee have reason to believe that a comparison of the capabilities of this extent of country in our own continent exceeds in extent of navigation, area of arable and pastoral lands, valuable fresh-water fisheries, forests and mines, and in capacity to support population, the continental part of Europe to which we have referred.

Many important points have therefore been omitted from this report, for information upon which your Committee beg to refer your Honourable House to the evidence itself; they have, however, accompanied this report, as being a necessary adjunct, with four maps of a size suitable to form two pages of this report, carefully prepared by Robert Bell, Esq., M.D., LL.D., Assistant Director of the Geological Survey; the first

showing upon it in colours the northern and eastern extent of possible potato, barley and wheat growth, the pastoral, prairie, and wood region, and the Barren Grounds, the second showing in colours the mineral deposits in the Mackenzie Basin; the third shows the southern limit of the feeding-ground of the musk ox and of the reindeer, the northern range of the wolverine, otter, beaver, black bear and Virginia deer, the former range of bison and wood buffalo, and the present range of the moose, the Greenland seal and of the larger whales; and the fourth shows in colours the extent of the river, lake and sea coast navigation and the coal and lignite deposits.

Your Committee believe that these are necessary for the proper information of your Honourable House and the full explanation of the evidence submitted herewith, and should this suggestion be adopted, they will feel that with this report and the evidence herewith they will have done all that it was possible to do since the date of their appointment and the receipt of their instructions, to inform your Honourable House and the people of this country upon the resources of *Canada's Great Reserve*.

All of which is respectfully submitted.

JOHN SCHULTZ,
Chairman.

BITUMINOUS SAND-ROCK AND MINERAL TAR OR MALTHA.

From "Chemical Contributions to the Geology of Canada. From the Laboratory of the Geological Survey. By G. Christian Hoffman, F. Inst. Chem., Chemist and Mineralogist to the Survey. 1883."

From the Athabasca or Elk River, North-West Territory.—With reference to the geological position and general mode of occurrence of the above, Dr. R. Bell informs me:

"That the deposit is of cretaceous age, but rests directly upon limestone of the Devonian system. The bedding of the latter undulates gently, while the asphaltic sand lies in thick horizontal layers upon its surface, and in some cases fills fissures in the upper part of the limestone. The asphaltic matter has no doubt resulted from petroleum rising up out of the underlying Devonian rocks, in which evidence of its existence can be detected. In descending the Athabasca River it was first observed a few miles above the junction of the Clearwater

branch, below which it becomes more conspicuous, forming the whole banks of the stream, with the exception of a few feet of limestone at the base, for a distance of many miles. These banks are sometimes about one hundred and fifty feet in height, and frequently maintain an elevation of about one hundred feet for considerable distances. Except where they have been long exposed to the weather, they generally look as black as coal. A thick tar is often seen draining out of the deposit, and in numerous places on the ground at the foot of either bank, or on terraces lower than their summits, this tar collects in pools or flows in sluggish streams to lower levels among the peaty materials in the woods. The surface of these accumulations of tar is usually covered with a hardened pitchy crust. The boatmen on the river break through this crust in order to collect the underlying tar, which they boil down and use for pitching their craft. Some parts of the banks are rendered plastic *en masse* from being over-saturated with the asphalt, and in warm weather they slide gradually down into the bed of the river, incorporating the boulders and pebbles in their course."

BITUMINOUS SAND-ROCK.

From the Athabasca River, about six miles below its confluence with the Clearwater; collected by Dr. R. Bell. This specimen was compact and homogeneous in appearance, of a dull, dark, brownish-black colour. Specific gravity at 60° F. 2.040. At the temperature of 50° F. it is quite firm, barely, if at all, yielding to pressure, and does not soil the hand; at 70° F. it gives somewhat to the touch, and it is slightly sticky; at 100° F. it becomes quite soft, and eminently soils the fingers. It is scarcely acted on by alcohol in the cold, and but very slightly at a boiling temperature; but ether, oil of turpentine, kerosene, benzine (petroleum spirit), benzol (coal-tar naphtha) and bi-sulphide of carbon, more especially the last two named, readily dissolve the bituminous matter, with formation of dark brown coloured solutions, and leaving a pure, or almost pure, siliceous residue in the form of sand, of which apparently the bitumen had constituted the sole binding medium.

The composition of this specimen of the rock was found to be as follows:

Bitumen	12.42
Water, mechanically included	5.85
Siliceous sand	81.73

100.

The sand consisted of colourless transparent quartz, not unfrequently presenting the bright, glassy lustre of broken quartz crystal; the surfaces were, however, for the most part, more or less dulled by abrasion. It contained a few flakes of silvery mica, and, as Mr. Adams—to whom I handed a small quantity for microscopical examination—informs me, an occasional fragment of felspar. It is on the whole exceedingly fine, 52 per cent. of the same passing a sieve of ninety meshes to the linear inch; 16 per cent., one of seventy-five meshes; 15 per cent., one of sixty-six meshes, and 9 per cent., one of fifty meshes, leaving a balance of 8 per cent. as rejected by the latter.

Subsequent to the foregoing examination, Mr. A. S. Cochrane, of this Survey, handed me a specimen which he collected, and which differs from the above in that it does not appear to contain so much water, and the bituminous matter partakes more of the nature of asphalt. At the temperature of 65° F. it is quite hard, fragments may be chipped off with a hammer, and it is reducible in a mortar to a non-coherent pulverulent condition; at 100° F. it barely yields to pressure, and is only slightly adhesive; at 150° F. it gives to the touch and is somewhat sticky; at 200° F. it is quite soft, and may be readily moulded.

MALTA OR MINERAL-TAR.

From the right bank of the Athabasca, about twelve miles below its confluence with the Little Red River; collected by Mr. A. S. Cochrane.

This material also occurs at several other points farther down the river, and is identical with that referred to in the prefatory remarks.

The sample in question had a pitchy-black colour in thin layers, and by transmitted light, rich, dark reddish-brown. The specific gravity at 60° F. was found to be 1.023; at this temperature it has the consistence of a soft extract, and will barely flow; at 70° F. flows, but sluggishly, whilst at 100° F. it has the consistence of treacle.

As regards the utilization of these substances, the most appropriate application of the former, and that for which it would appear to be admirably adapted, would be for asphaltting purposes. It has one of the most important qualifications of a good bituminous concrete, viz., intimate combination of the mineral and organic constituents, and this in a degree which

no artificial preparation of the kind could be expected to possess. It will in all probability be found that a very slight treatment will render it suitable for employment in the construction of roads, footpaths, courtyards, etc., for asphaltting the flooring of granaries, basements of warehouses, and the like, and further as a roofing material. Should it be deemed more expedient to separate the bitumen, this may be effected by simply boiling or macerating the material with hot water, when the bituminous matter, entering into fusion, will rise as a scum to the surface and may be removed by skimmers, whilst the sand falls to the bottom of the vessel.

An experiment was made in order to ascertain the greatest state of purity to which the bitumen could be brought by this method; it was found that of the 81.73 per cent. sand, 69.26 per cent. had been removed, the extracted bitumen containing 50.1 per cent. sand, and—owing to the extreme fineness of a portion of this latter, as already mentioned—it may be questioned if the purification by this method could be pushed much beyond this.

The sand separated by this process, when carefully conducted, is free or almost free from bitumen, and might, after being heated to redness in a reverberatory furnace—to destroy any little adhering bitumen—be advantageously employed for the manufacture of one of the better qualities of glass.

The above treatment requires but the simplest of appliances, and might be readily carried out on the spot.

The amount of maltha at my disposal was far too small to warrant any attempt at its distillation. Should it occur in sufficient quantity it might possibly, amongst other uses, be advantageously employed as a crude material for the manufacture of illuminating and lubricating oils and paraffin.

THE BARREN GROUNDS TO THE EAST OF ANDERSON RIVER.*

BY RODERICK MACFARLANE.

The belt of timber, which at Fort Anderson (established on Anderson River in 1861, and abandoned 1866; approximate latitude, 68° 30' north) extends for over thirty miles to the eastward, rapidly narrows and becomes a mere fringe along the Anderson River and disappears to the northward of the sixty-ninth parallel of latitude. The country is thickly interspersed

* Published in the *Canadian Record of Science*, January, 1890.

with sheets of water, varying in size from mere ponds to small and fair-sized lakes. In travelling north-eastward toward Franklin Bay, on the Arctic coast, several dry, swampy, mossy and peaty plains were passed before reaching the Barren Grounds proper. The country thence to the "height of land" between the Anderson and the deep, gorge-like valley through which the Wilmot Horton River (MacFarlane's River of Petitot's map) flows, as well as from the "crossing" of the lakes to the high plateau which forms the western sea-bank of Franklin Bay, consists of vast plains or *steppes* of a flat or undulating character, diversified by some small lakes and gently sloping eminences, not dissimilar in appearance to portions of the North-West prairies. In the region here spoken of, however, the ridges occasionally assume a mound-like, hilly character, while one or two intersecting affluents of the Wilmot Horton flow through valleys in which a few stunted spruce, birch and willow appear at intervals. On the banks of one of these, near its mouth, we observed a sheltered grove of spruce and willows of larger growth, wherein moose and musk oxen had frequently browsed. We met with no more spruce nor any traces of the moose to the eastward, and I doubt if many stragglers range beyond latitude sixty-nine north.

The greater part of the Barren Grounds is every season covered with short grasses, mosses and small flowering plants, while patches of sedgy or peaty soil occur at longer or shorter distances. On these, as well as along the smaller rivulets, river and lake banks, Labrador tea, crow-berries, and a few other kinds of berries, dwarf birch, willows, etc., grow. Large flat spaces had the honeycombed appearance usually presented in early spring by land which had been turned over in the previous autumn. There were few signs of vegetation on these, while some sandy and many other spots were virtually sterile. Traces of the dark bituminous formation seen on the Lockhart, Anderson and Ross rivers, of the 1857 Report, no doubt exist along the Wilmot Horton River and the greater part of Franklin Bay, especially to the north of our camping point (near its southern extremity). The foregoing Barren Grounds are chiefly composed of a peaty, sandy, clayey or gravelly soil; but stones are rare, and rock *in situ* was encountered but on two or three occasions on the line of march from the Fort to the Coast.

R. MACFARLANE.

MR. COTE'S POEM.

Sortez de vos tombeaux, peuplades endormies
A l'ombre des grands pins de vos forêts bénies!
Venez, fils de guerriers, qui jadis sous ces bois
Bruliez vos tomahawks, vos armes et vos carquois!
Que sur vos pâles fronts l'auréole immortelle
Pour votre bienfaiteur s'illumine plus belle.
Néophytes, venez en ce jour de bonheur
Proclamer les vertus de l'illustre pasteur,
Qui pour vous ses agneaux, ses brebis les plus chères.
Consacra sa jeunesse et ses années entières.
Venez, fleurs qui brillez au jardin du Bon Dieu.
Répandre les parfums qu'exhale le saint lieu
Sur l'illustre vieillard qui de sa voix bénie
Vous fit épanouir dans l'hôteureuse patrie!
Tendre et vénéré père, apôtre magnanime,
Grand prêtre du Seigneur, votre oeuvre fut sublime.
Des bords du Missouri jusqu'aux glaces du nord,
Voyez, semeur béni, cinquante sillons d'or;
Voyez sur le versant de la montagne sainte
De votre charité l'impérissable empreinte;
Voyez cette légion d'âmes régénérées
Portant par votre main les célestes livrées.
Quoi, muse profane, indigne chalumeau,
Oserais-tu planer sur un thème si haut?
Pour chanter du héros les fêtes jubilaires
Descends de ces hauteurs à demi-séculaires!
Muse prosterne-toi. Hosanna! Hosanna!
Au ciel gloire au Très-Haut. Jube, alleluia!
Hommage sur la terre à l'Oblat de Marie,
Qui dans son cycle d'or brille sur la patrie!

INDEX TO MAMMALS

- Badger, 212
 Bat, Blunt-nosed, 266.
 Silvery haired, 221.
 Bear, Black, 221
 Grizzly, 215
 Polar, 224 [216
 Richardson's Barren Ground,
 Beaver, 252
 Buffalo, Woodland, 177
 Carcajou, 201
 Caribou, Woodland, 161
 CARNIVORA, 178
 CETACEA, 232
 Chipmunk, Northern, 263
 Say's, 263
 CHIROPTERA, 266
 Coyote, 182
 Dog, Eskimo, 183
 Hare Indian, 191
 Ermine, 208
 Fisher, 203
 Fox, Black, 191
 Cross, 191
 Kit, 196
 Red, 191
 Silver, 191
 White, 197
 Goat, Rocky Mountain, 169
 Gopher, Northern Pocket, 261
 Ground Hog, 264
 Hare, Little-chief, 250
 Northern Varying, 249
 Polar, 247
 INSECTIVORA, 265
 Lemming, Hudson Bay, 244
 Tawny, 242
 Lynx, Canada, 178
 Marmot, Hoary, 265
 Marten, 205
 Mink, 209
 Moose, 157
 Mountain Sheep, Dall's, 169
 Mouse, Chestnut-cheeked, 242
 Jumping, 247
 Little Meadow, 242
 Meadow, 242
 Red-backed, 240
 White-footed or Deer, 240
 Musk Ox, 170
 Muskrat, 244
 Musquash, 244
 Narwhal, 236
 Otter, Land, 213
 Gray Sea, 215
 PINNIPEDIA, 227
 Porpoise, Harbour, 237
 Porcupine, Canada, 251
 Yellow-haired, 251
 Raccoon, 212
 Rat, Bushy-tailed Wood, 239
 Reindeer, Barren Ground, 162
 Rocky Mountain Goat, 169
 RODENTIA, 239
 Seal, Bearded, 231
 Fur, 232
 Harbour, 229
 Shrew, Forster's, 265
 Coe's, 266
 Skunk, 211
 Squirrel, Northern Flying, 261
 Red, 262
 Spermophile, Parry's, 263
 Richardson's, 264
 Striped, 264
 UNGULATA, 157
 Walrus, 227
 Weasel, 208
 Whale, Arctic Right, 234
 Greenland, 234
 White, 232
 Wolf, Black, 180
 Gray, 180
 White, 180
 Wolverine, 201
 Woodchuck, 264

INDEX TO BIRDS

- Avocet, American, 328
 Baldpate, 305
 Blackbird, Brewer's, 397
 Red-winged, 395
 Rusty, 396
 Yellow-headed, 394
 Bluebird, Mountain, 434
 Brant, Black, 324

 Canada Jay, 388
 Chickadee, Alaskan, 430
 Hudsonian, 431
 Long-tailed, 430
 Coot, American, 327
 Crane, Little Brown, 326
 Whooping, 325
 Crossbill, American, 400
 White-winged, 400
 Crow, American, 391
 North-West, 393
 Curlew, Eskimo, 443
 Hudsonian, 442

 Dowitcher, Long-billed, 329
 Duck, American Golden Eye, 311
 American Scaup, 310
 American Scoter, 316
 Barrow's Golden Eye, 312
 Black, 304
 Buffle Head, 312
 Canvas-back, 308
 King Eider, 315
 Lesser Scaup, 310
 Old Squaw, 313
 Pacific Eider, 314
 Pintail, 307
 Red-head, 308
 Ring-necked, 311
 Ruddy, 317
 Shoveller, 307
 Surf Scoter, 317
 White-winged Scoter, 316
 Wood, 308
 Duck Hawk, 363

 Eagle, Bald, 360
 Golden, 357
 Eider, King, 315
 Pacific, 314

 Finch, California Purple, 399
 Purple, 399
 Flicker, 379
 Flycatcher, Hammond's, 386
 Least, 385

 Gadwall, 304
 Godwit, Hudsonian, 334
 Marbled, 333 [321
 Goose, American White-fronted, [321
 Canada, 321
 Greater Snow, 319
 Hutchins, 322
 Lesser Snow, 318
 Ross's Snow, 319
 White-cheeked, 323
 Goshawk, American, 352
 Grackle, Bronzed, 398
 Grebe, American Eared, 293
 Holboell's, 292
 Horned, 292
 Western, 290
 Grosbeak, Pine, 398
 Grouse, Canada, 340
 Canadian Ruffed, 341
 Franklin's, 340
 Gray Ruffed, 342
 Oregon Ruffed, 342
 Richardson's, 339
 Sharp-tailed, 348
 Gull, Bonaparte's, 300
 California, 437
 Franklin's, 299
 Glaucous, 436
 Herring, 298
 Iceland, 436
 Ring-billed, 299
 Sabine's, 438
 Short-billed, 437
 Gyrfalcon, 361

- Hawk, American Rough-legged,
American Sparrow, 367 [355
Cooper's, 352
Duck, 363
Marsh, 350
Pigeon, 364
Red-tailed, 353
Sharp-shinned, 351
Swainson's, 354
Western Night, 382
Humming Bird, Rufous, 383
Jaeger, Long-tailed, 435
Parasitic, 297
Pomarine, 297
Jay, Canada, 388
Junco, Oregon, 411
Shufeldt's, 411
Slate-colored, 410
Kildeer, 337
Kingfisher, Belted, 372
Kinglet, Ruby-crowned, 431
LAND BIRDS, 339 *et seq.*
Lark, Pallid Horned, 387
Longspur, Lapland, 403
Smith's, 404
Loon, 293
Black-throated, 295
Pacific, 296
Red-throated, 296
Yellow-billed, 295
Mallard, 303
Merganser, American, 302
Hooded, 303
Red-breasted, 302
Merlin, Richardson's, 366
Night Hawk, 381
Western, 382
Nutcracker, Clarke's, 393
Osprey, American, 444
Oven Bird, 427
Owl, American Hawk, 371
Arctic Horned, 369
Great Grey, 446
Richardson's, 368
Short-eared, 445
Snowy, 370
Pelican, American White, 301
Phalarope, Northern, 439
Red, 439
Phoebe, 384
Pigeon Hawk, 364
Pipit, American, 429
Plover, American Golden, 336
Black-bellied, 336
Semipalmated, 338
Ptarmigan, Rock, 346
Willow, 343
Raven, Northern, 390
Redpoll, 401
Hoary, 401
Redstart, American, 429
Robin, American, 433
Sanderling, 332
Sandpiper, Baird's, 331
Buff-breasted, 442
Least, 441
Pectoral, 440
Purple, 330
Semipalmated, 331
Spotted, 335
Stilt, 330
White-rumped, 440
Sapsucker, Red-breasted, 378
Yellow-billed, 377
Scoter, American, 316
Surf, 317
White-winged, 316
Shoveller, 306
Shrike, Northern, 420
Siskin, 402
Snipe, Wilson's, 329
Snowflake, 402
Sora, 327
Sparrow, Chipping, 409
Fox, 413
Gambel's, 406
Lincoln's, 413
Savanna, 405
Song, 412
Swamp, 413
Tree Sparrow, 408
Vesper, 405
Western Chipping, 410
Western Savanna, 406
Western Tree, 408
White-throated, 407
Sparrow Hawk, American, 367
Swallow, Bank, 418
Barn, 416
Cliff, 415
Tree, 417
Swan, Trumpeter, 325
Whistling, 324

- Tanager, Louisiana, 415
Teal, Blue-winged, 306
 Green-winged, 305
Tern, Arctic, 438
 Common, 301
Thrush, Grey-checked, 431
 Grinnell's Water, 428
 Olive-backed, 432
 Pale Varied, 434
 Water, 427
Turnstone, 339

Vireo, Red-eyed, 421
 Warbling, 422

WATER BIRDS 290 *et seq.*; 435 *et seq.*

Warbler, Audubon's, 425
 Bay-breasted, 426

Warbler (*Continued*).
 Black and-White, 422
 Black-poll, 426
 Cape May, 424
 Magnolian, 425
 Myrtle, 425
 Orange-crowned, 423
 Tennessee, 423
 Yellow, 424
Waxwing, Bohemian, 418
 Cedar, 419 [376
Woodpecker, Alaskan Three-toed,
 American Three-toed, 375
 Arctic Three-toed, 374
 Batchelder's, 374
 Gairdner's, 374
 Northern Hairy, 373
 Pileated, 379

Yellow Legs, 441
 Greater, 334

